USER'S MANUAL

notebook

V19.3.00

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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:

• **Models A & C** - Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19.5V, 11.8A (**230 Watts**)

• **Models B & D -** Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19.5V, 16.9A (**330 Watts**)
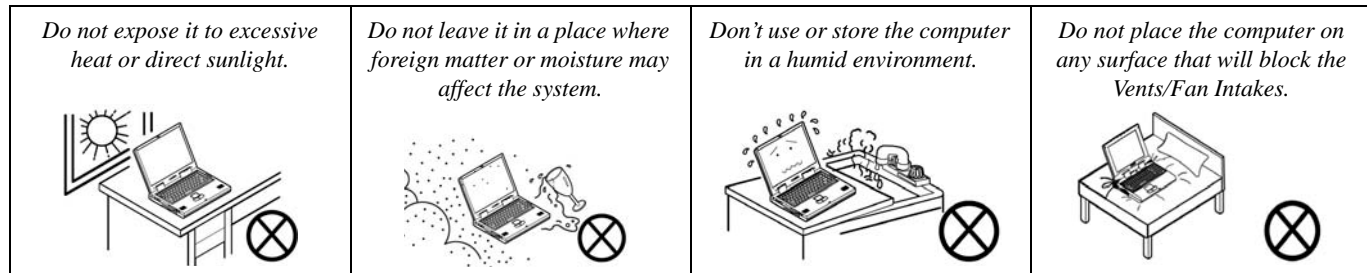
Instructions for Care and Operation

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.

Do not expose the computer to any shock or vibration.	*Do not place it on an unstable surface.*	*Do not place anything heavy on the computer.*

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.

Do not expose it to excessive heat or direct sunlight.	*Do not leave it in a place where foreign matter or moisture may affect the system.*	*Don't use or store the computer in a humid environment.*	*Do not place the computer on any surface that will block the Vents/Fan Intakes.*

Preface

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

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

Do not turn off the power until you properly shut down all programs.	*Do not turn off any peripheral devices when the computer is on.*	*Do not disassemble the computer by yourself.*	*Perform routine maintenance on your computer.*

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

Use only approved brands of peripherals.	*Unplug the power cord before attaching peripheral devices.*

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:

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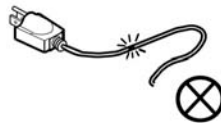
You must also remove your battery in order to prevent accidentally turning the machine on. **Before removing the battery disconnect the AC/DC adapter from the computer.**

- 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).
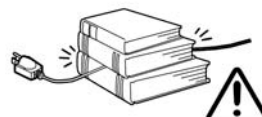
Do not plug in the power cord if you are wet.	*Do not use the power cord if it is broken.*	*Do not place heavy objects on the power cord.*

Polymer Battery Precautions

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

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

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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.

</div>

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.

Cleaning Instructions

(*For Computer Models Supplied with Light Blue Cleaning Cloth*)

Some computer models in this series come supplied with a light blue cleaning cloth. To clean the computer case with this cloth follow the instructions below:

1. Power off the computer and peripherals.
2. Disconnect the AC/DC adapter from the computer.
3. Use a little water to dampen the cloth slightly.
4. Clean the computer case with the cloth.
5. Dry the computer with a dry cloth, or allow it time to dry before turning on.
6. Reconnect the AC/DC adapter and turn the computer on.

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.

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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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, Fingerprint, 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** and **Flexikey® Application**.
- **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 pro-grams) 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 com-municate 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 **8GB** 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. **When first setting up the computer use the following procedure** (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 and initially set up as below):
    *   Attach the AC/DC adapter cord to the DC-In jack at the rear of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter and **leave it there for 6 seconds or longer**.
    *   Remove the adapter cord from the computer's DC-In jack, and then plug it back in again; the battery will now be unlocked.
3. Use one hand to raise the lid/LCD to a comfortable viewing angle (it is preferable not to exceed 135 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).

🖉

Shutdown

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

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

Model Differences

This notebook series includes **four** different model types (see *Appendix D* for full specification details) that mainly differ as indicated in the table below. Note that your model may appear slightly different from those pictured in this manual. Note that this computer model series may support a range of CPUs and/or video adapters.

Feature	Model A	Model B	Model C	Model D
Display	15.6" (39.62cm) UHD (3840 * 2160) / FHD (1920 * 1080), 3.2mm, 16:9 Backlit Panel		17.3" (43.94cm) FHD (1920 * 1080) / *QHD (2560 * 1440) / *UHD (3840 * 2160), 4.0mm, 16:9 Backlit Panel *Note: QHD/UHD panels are available for systems with NVIDIA® G-SYNC™ Technology only*	
Subwoofer Speaker	Not Supported		Supported	
USB 2.0 Port	Supported		Not Supported	
3G/4G Module	Supported		Not Supported	
Power Adapter	Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19.5V, 11.8A (**230 Watts**)	Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19.5V, 16.9A (**330 Watts**)	Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19.5V, 11.8A (**230 Watts**)	Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19.5V, 16.9A (**330 Watts**)

Table 1 - 1 - **Model Differences**

LCD Panel Open - Models A & B

Figure 1 - 2
LCD Panel Open - Models A & 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.

1. Built-In PC Camera
2. PC Camera LED
3. Built-In Array Microphone
4. LCD
5. Speakers
6. Power Button
7. LED Indicators
8. Illuminated LED Keyboard
9. TouchPad & Buttons
10. Fingerprint Reader Sensor

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

Left Button zone   Right Button zone

Quick Start Guide

Figure 1 - 3
LCD Panel Open - Models C & D

1. Built-In PC Camera
2. PC Camera LED
3. Built-In Array Microphone
4. LCD
5. Speakers
6. Power Button
7. LED Indicators
8. Illuminated LED Keyboard
9. TouchPad & Buttons
10. Fingerprint Reader Sensor

Note that the Touchpad/ Clickpad & Buttons has a valid operational area indicated within the dotted lines on the left.

LCD Panel Open - Models C & D
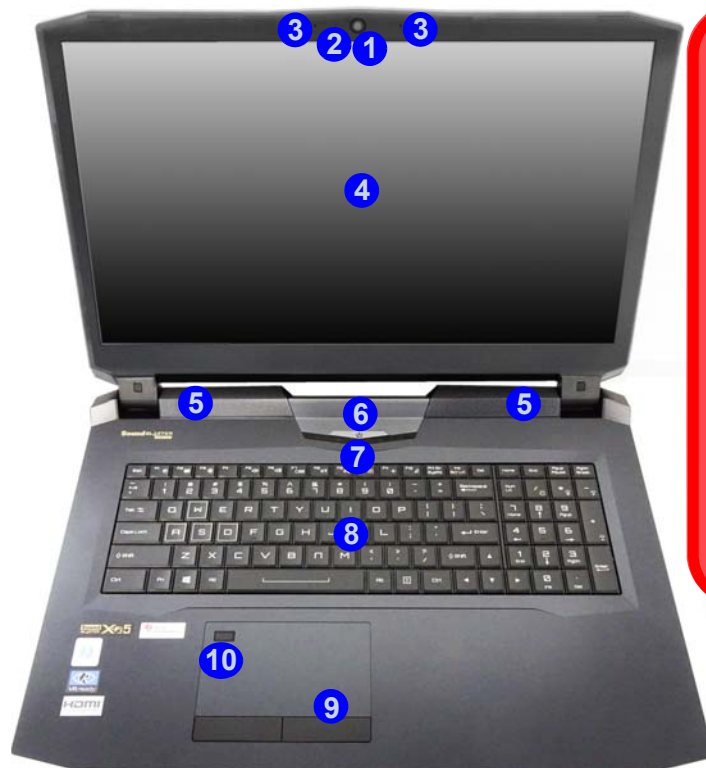
❄️
Wireless Device Operation Aboard Aircraft

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.

Left Button zone | Right Button zone

1 - 8 LCD Panel Open - Models C & D
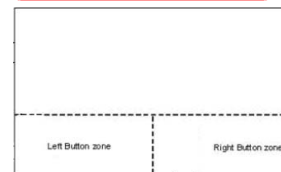
LED Indicators

The LED indicators on the top case, and at the front of the computer, display helpful information about the current status of the system (note the **top case LEDs** for **Models A & B are green**, **Models C & D are white**).

Top Case LEDS			Front Case LEDS		
Icon	Color	Description	Icon	Color	Description
				Orange	The Battery is Charging
	Green/White	Number Lock is Activated NUM LOCK ON			
	Green/White	Caps Lock is Activated CAPS LOCK ON		Blinking Orange	The Battery has Reached Critically Low Power Status
	Green/White	Scroll Lock is Activated SCR LOCK ON		Green	The Battery is Fully Charged
	Green/White	Hard Disk Activity		Orange	AC/DC Power is Plugged In
	Green/White	**Airplane Mode** is **ON** (the WLAN, Bluetooth & 3G/4G Modules are OFF)		Blinking Orange*	The Powered USB Port is On (see *"Powered USB 3.0 (USB 3.1 Gen 1) Port" on page 1 - 18*)
				Green	The Computer is On
				Blinking Green	The Computer is in Sleep Mode

Table 1 - 2 **- LED Indicators**

Illuminated LED Keyboard

The illuminated 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 - 14* for full function key combination details.

Figure 1 - 4 - **Illuminated LED Keyboard**

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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.

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. You can also configure the keyboard **LED Device** settings from the Control Center (see *Appendix B*).

> **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.

Figure 1 - 5 **- Control Center**

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 to12) **profiles** to which the settings are applied. Click **Flexikey** in the **Control Center** to launch the application (see *Appendix B* for full details).

Windows Key
Fn & P Keys

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

Figure 1 - 6 **- Flexikey® Application**

Keyboard Backlight LED

Press **Fn** plus the [⌨] **2** key to toggle the keyboard LED on/off. The keyboard LED may be configured using the **Fn + key combination** outlined in the table below. In addition press **Fn** plus the [⌨] **1** key to launch the keyboard backlight application to configure the settings (see overleaf).
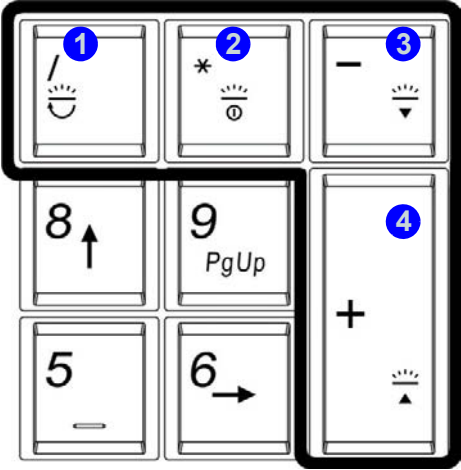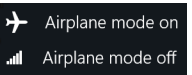
Main Keyboard LED Function key Combinations		
Fn + [⌨]	**1** Launch the Keyboard Backlight Application	
Fn + [⌨]	**2** Toggle the Keyboard Backlight LED On/Off BACKLIGHT KEYBOARD ON BACKLIGHT KEYBOARD OFF	
Fn + [⌨]	**3** Keyboard Backlight LED Low BACKLIGHT KEYBOARD LOW	
Fn + [⌨]	**4** Keyboard Backlight LED High BACKLIGHT KEYBOARD HIGH	

Table 1 - 3 **- Main Keyboard LEDs**

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 + [! 1]	* Fan Control Toggle Automatic / Full Power	FAN SPEED MAXIMUM / FAN SPEED AUTOMATIC	Fn + [Esc]	**Control Center** Toggle (see over)	
Fn + [▶/Ⅱ]	Play/Pause (in Audio/Video Programs)		Fn + [F7]	Display Toggle	
Fn + [F1]	Touchpad Toggle	TOUCH PAD ON / TOUCH PAD OFF	Fn + [F8] [F9]	Brightness Decrease/Increase	
Fn + [F2]	Turn LCD Backlight Off (Press a key to or use Touchpad to turn on)		Fn + [F10]	PC Camera Power Toggle	CAMERA ON / CAMERA OFF
Fn + [F3]	Mute Toggle		Fn + [F11]	Airplane Mode Toggle	✈ Airplane mode on / Airplane mode off
Fn + [F5] [F6]	Volume Decrease/Increase		Fn + [F12]	Sleep Toggle	
Fn + **Power Button**	Powered USB 3.0 Port Power Toggle		Fn + **Backspace**	Flexikey® Enable/Disable	

Table 1 - 4 **- Function Keys & Visual Indicators**

***Note**: It is recommended that you use Maximum fan speed when playing games (use Fn + 1).

1 - 14 Function Keys & Visual Indicators

Front & Rear Views
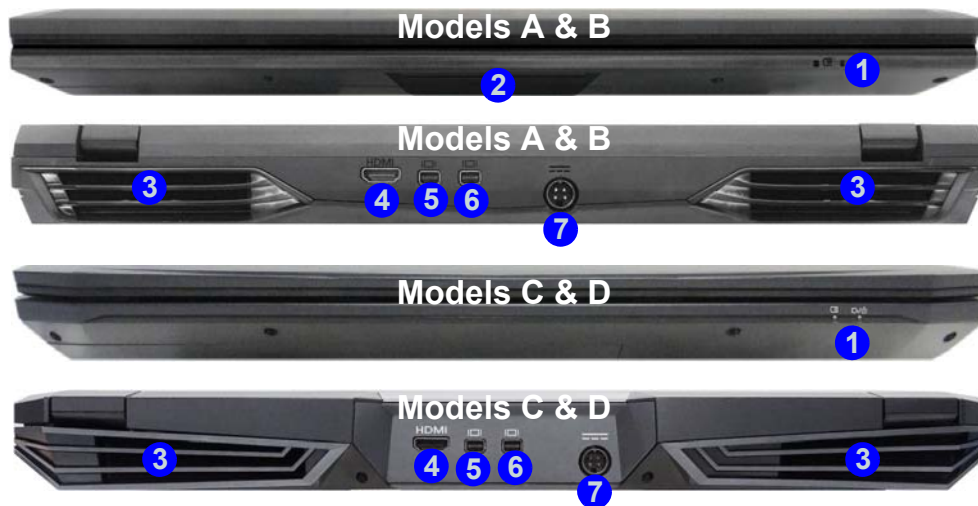
Models A & B

2 1

Models A & B

3 HDMI 4 5 6 7 3

Models C & D

1

Models C & D

3 HDMI 4 5 6 7 3

🔔

Caution - Vents / Fan Intakes /Outlets

The area around the vents/fan intakes/outlets on the bottom, and at the rear, of the computer can get quite hot after extended use, so try not to touch this area if you need to lift or move the computer.

🔔

Overheating

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

🖉

HDMI Port / Display Ports

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

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

Lightbar LED

Note that the Lightbar LED colors may be configured using the **Control Center** (see page *B - 22*).

🔆

Overheating

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

Mini DisplayPort

When a display only connection for the Thunderbolt port is enabled (in the BIOS) then **DisplayPort 1** (**5**) will be turned off (see page *1 - 15*.).

Right View
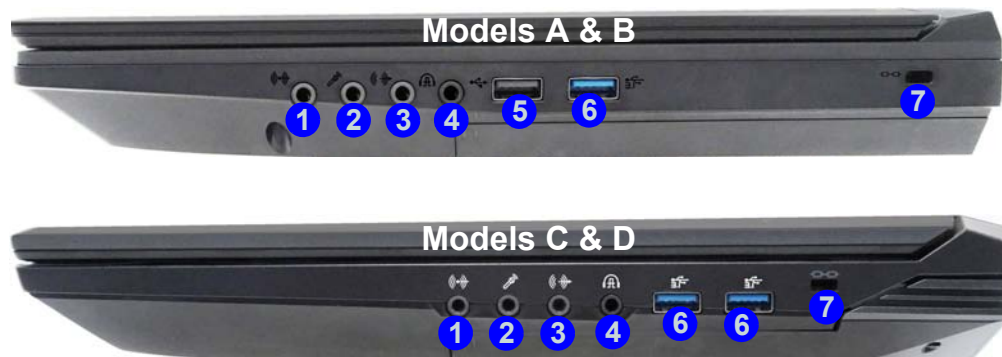
Models A & B

Models C & D

Figure 1 - 8
Right View

1. Line-In Jack
2. Microphone Jack
3. Line-Out Jack
4. 2-In-Audio Jack
   (Headphone /
   S/PDIF-Out Jack)
5. USB 2.0 Port
   (**Models A & B
   Only**)
6. USB 3.0 Ports
   (USB 3.1 Gen 1)
7. Security Lock Slot

🔔

USB Ports

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

Figure 1 - 9
Left View

1. RJ-45 LAN Jack
2. 1 * USB 3.1 Gen 2 (Type C) Thunderbolt™ 3 Combo Port
3. 1 * USB 3.1 Gen 2 (Type C) Port
4. USB 3.0 Port (USB 3.1 Gen 1)
5. Powered USB 3.0 Port (USB 3.1 Gen 1)
6. Multi-In-1 Card Reader

Left View

Models A & B

Models C & D

🖉
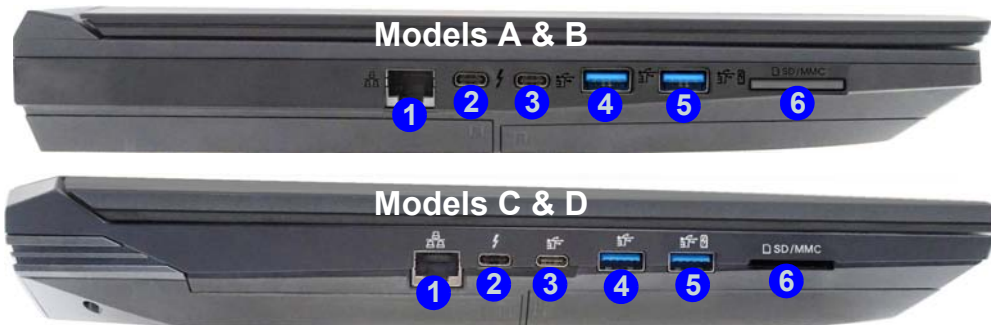
Powered USB 3.0 (USB 3.1 Gen 1) Port

Note that the USB 3.0 ports are not operational under DOS and do not support wake on USB. The **powered USB 3.0** (**5** in *Figure 1 - 9*) port can supply power (**for charging devices only, not for operating devices**) when the system is off but still powered by the AC/DC adapter plugged into a working outlet, or powered by the battery with a capacity level above 20% (this may not work with certain devices - see page *7 - 12*). Toggle power to this port by using **Fn + power button**.

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 (Up to UHS-II)

☼

Thunderbolt Port Devices

When plugging a device into a Thunderbolt port allow 30 seconds for the system to scan and recognize the connected device.

You can enable/disable the Thunderbolt port in the BIOS (see *"Intel(R) Thunderbolt Technology (Advanced Menu > Intel(R) Thunderbolt)" on page 5 - 11*), and *disabling the port will also disable its functionality as a USB port*. If you want to use the Thunderbolt port to support display devices then you will need to set it up in the BIOS (see *"DDI Control (Advanced Menu > Advanced Chipset Control)" on page 5 - 10*). **When the Thunderbolt port is set to be used for display only, then DisplayPort 1 (⑤ in *Figure 1 - 7 on page 1 - 15*) will be disabled**. You can also set the level of security for the Thunderbolt port in the BIOS.

Ejecting Thunderbolt Devices

In order to prevent system problems make sure you **do not simply pull the cable out from the Thunderbolt port**. The hardware must be ejected safely:

1. Go to the notification area of the taskbar in the Desktop App and click on the **Safely Remove Hardware and Eject Media** icon.
2. Click on Eject "*Thunderbolt Device Name*".
3. When you see the "*Safe to Remove Hardware*" message **you can remove the cable after about 20 seconds,** to make sure that it is safe to eject the device.

Figure 1 - 10
Bottom View Models A & B

1. Fan Outlet/Intake
2. Component Bay Cover
3. Battery
4. Hard Disk Bay Cover

Bottom View - Models A & B
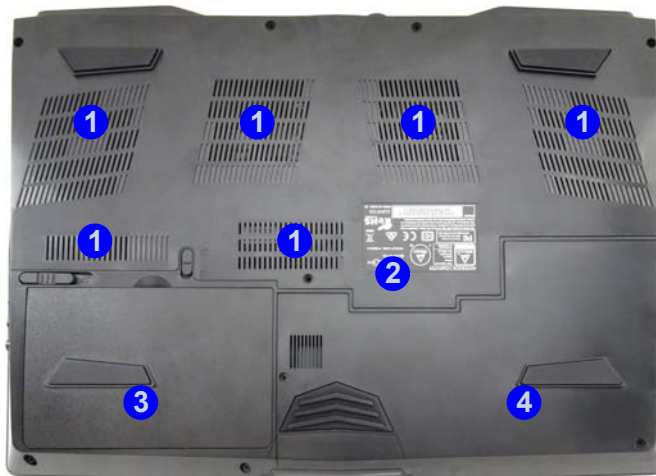
Caution - Vents / Fan Intakes /Outlets

The area around the vents/ fan intakes/outlets on the bottom, and at the rear, of the computer can get quite hot after extended use, so try not to touch this area if you need to lift or move the computer.

Battery Information

Always completely discharge, then fully charge, a new battery before using it. Completely discharge and charge the battery at least once every 30 days or after about 20 partial discharges. See *"Battery Information" on page 3 - 16* for full instructions.

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.

Bottom View - Models C & D

1. Fan Outlet/Intake
2. Component Bay Cover
3. Battery
4. Hard Disk Bay Cover
5. Built-in Subwoofer Speaker

⚠ 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.

⚠ Caution - Vents / Fan Intakes /Outlets

The area around the vents/fan intakes/outlets on the bottom, and at the rear, of the computer can get quite hot after extended use, so try not to touch this area if you need to lift or move the computer.

🖊 Battery Information

Always completely discharge, then fully charge, a new battery before using it. Completely discharge and charge the battery at least once every 30 days or after about 20 partial discharges. See *"Battery Information" on page 3 - 16* for full instructions.

Warranty Warning

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

Battery Removal & 3G/4G SIM Card Insertion

If you do need to remove the battery for any reason (e.g. long term storage) see below. In addition you will need to remove the battery in order to insert the USIM card (**for Models A & B computers only**).

1. Turn the computer **off**, and turn it over.
2. Slide the latch **1** in the direction of the arrow.
3. Slide the latch **2** in the direction of the arrow and the battery will pop up to be released.
4. Lift the battery up from the groove at point **3**.
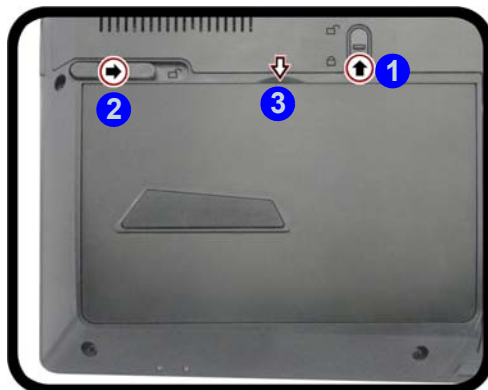
Figure 1 - 12
Battery Removal

5. Remove the battery from the bay ④.
6. Insert the USIM card ⑤ as illustrated below (pay careful attention to the orientation of the card as the gold contact side of the card should face upwards) until it clicks fully into position.
7. 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 (however your machine should be powered off when removing the battery in any case).
8. Reinsert the battery ⑥ as illustrated and slide the latches ⑦ & ⑧ into the lock position.

☼

USIM Card Orientation

Note that the USIM card's readable side (with the gold-colored contacts) should face upwards as illustrated.
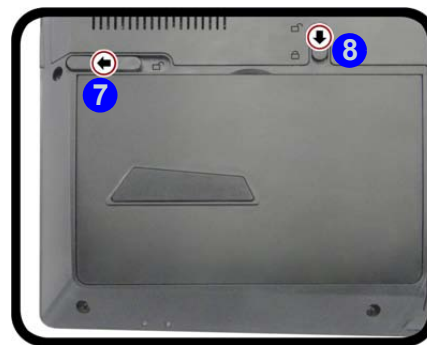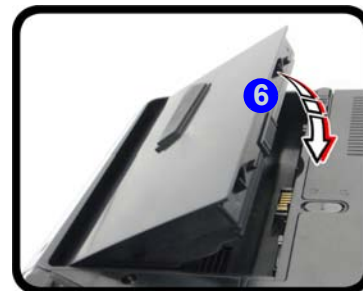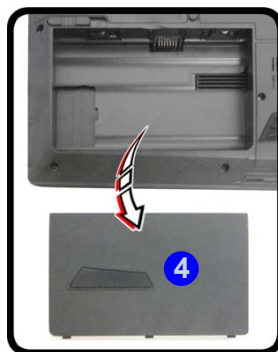
Figure 1 - 13
USIM Card & Battery Insertion

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). The 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 may fit on the screen so you can use the scroll bar to move up and down the screen.

🖉

Windows Screens

Note that the *Windows* screens on the following pages are included as a basic guide and introduction to navigating around *Windows 10*.

However note that these screens are always subject to change, upgrade and redesign. Check the Microsoft website for details.
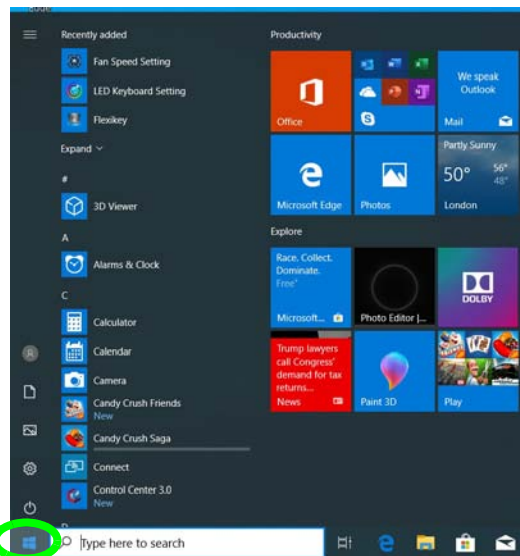
Figure 1 - 14 **- Windows Start Menu**

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 Apps and Features, Power Options, Task Manager, Search, File Explorer, Device Manager, Computer Management and Network Connections etc.

Apps and Features

Mobility Center

Power Options

Event Viewer

System

Device Manager

Network Connections

Disk Management

Computer Management

Windows PowerShell

Windows PowerShell (Admin)

Task Manager

Settings

Right-Click Icon

File Explorer

Search

Run

down or sign out

Desktop
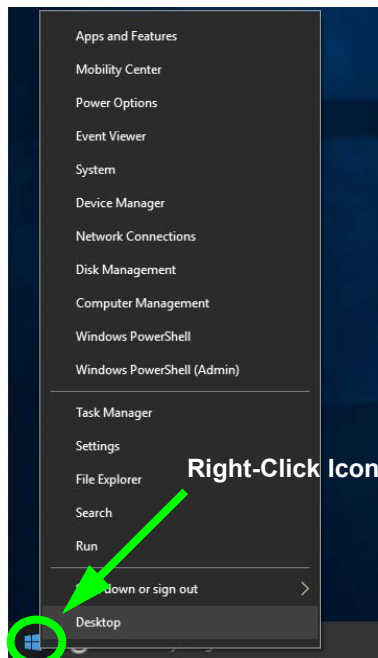
Figure 1 - 15 **- Right-Click Windows Logo in Start Menu**

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).
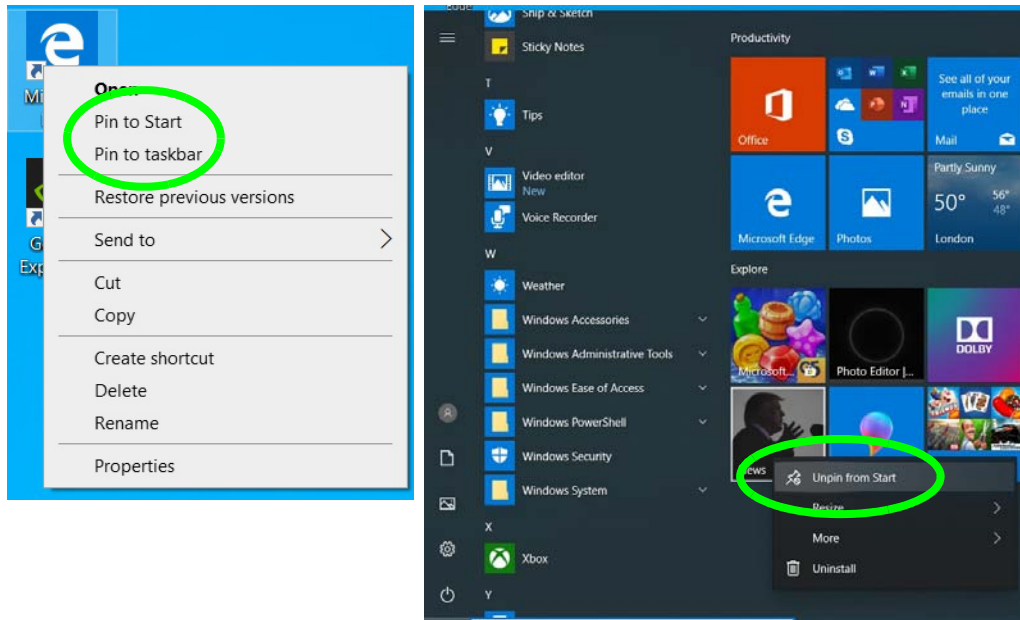
Figure 1 - 16 **- Pin to Start/Unpin from Start**

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*.

- Select *Control Panel* under the **Windows System** item in the **Start Menu**.

- Type *Control Panel* into the *Search* box in the taskbar and click on the icon when it pops up.

- You can pin the *Control Panel* tile to *Start* or *task-bar.*
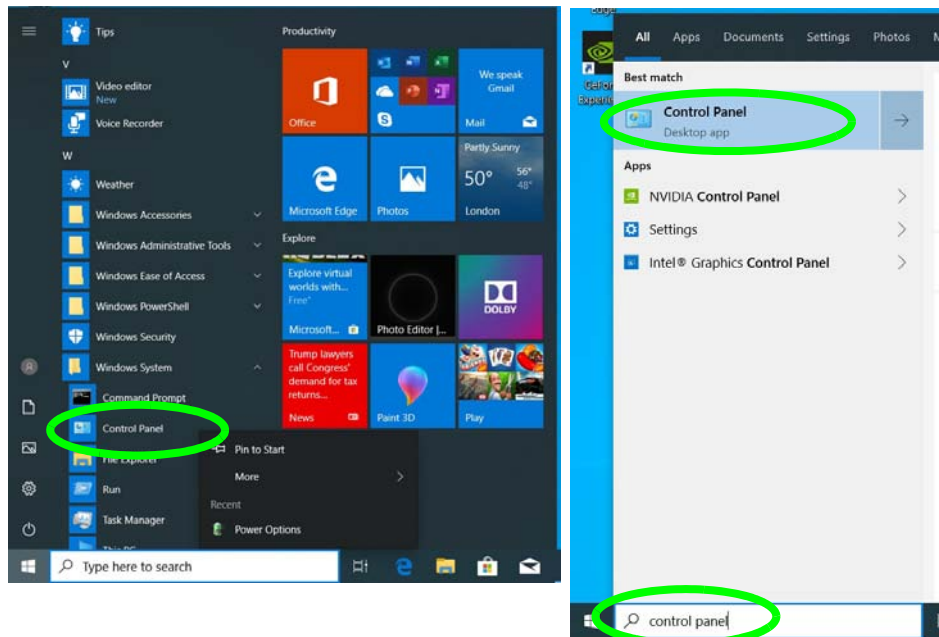
Figure 1 - 17 - **Windows 10 Control Panel Access**

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, Apps, Accounts, Time & language, Gaming, Ease of Access, Privacy and Update & security.

Figure 1 - 18 **- Settings**

1 - 28 Windows 10 Control Panel
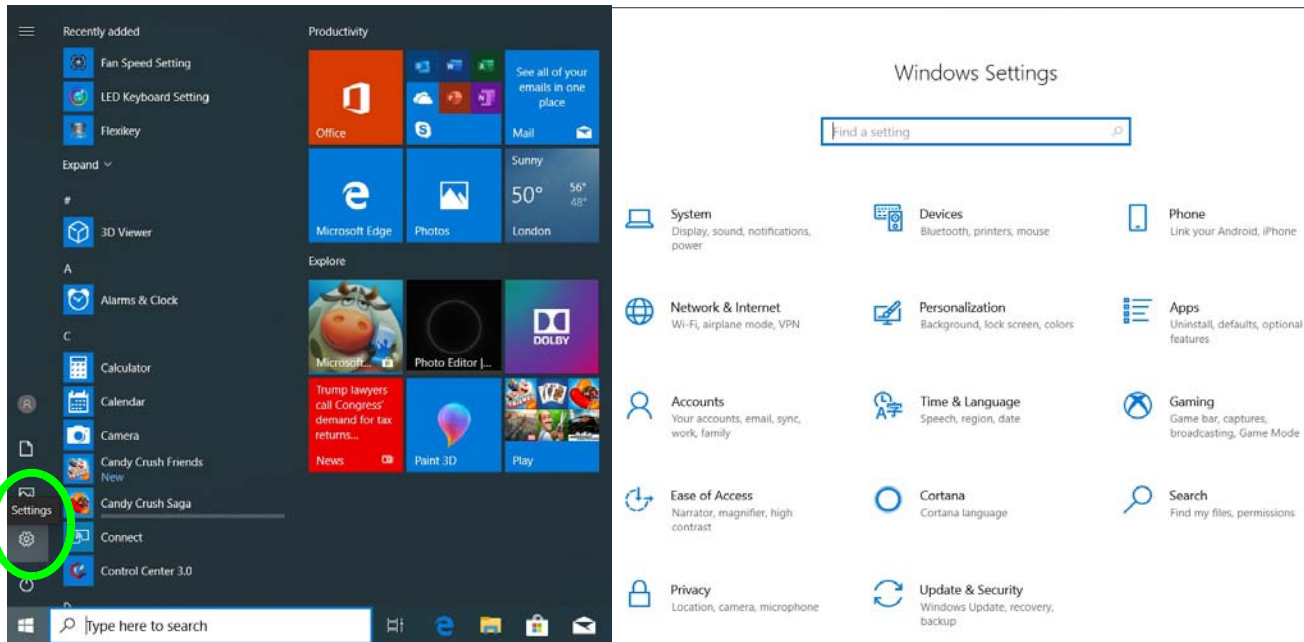
Windows 10 Taskbar

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 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
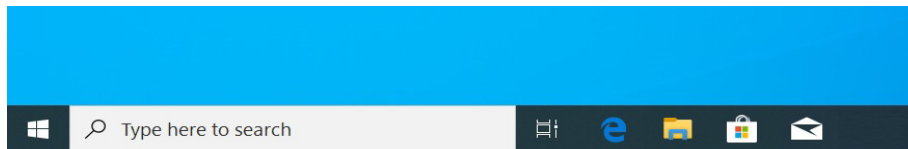
Taskbar - Pinned Programs and Apps
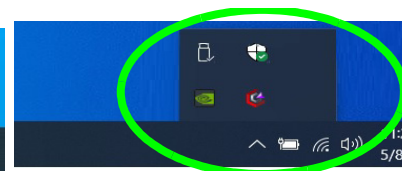
Notification Area

Figure 1 - 19 - **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 - 26*).

Action Center

The **Action Center** appears as a vertical panel on the right side of the screen (click **Expand** to view the full panel) when you swipe in from the right or click the button in the notification tray. This gives you access to commonly needed functions like Network, All Settings, Airplane Mode, and Project etc. The Action Center also contains a **Brightness** slider when expanded.
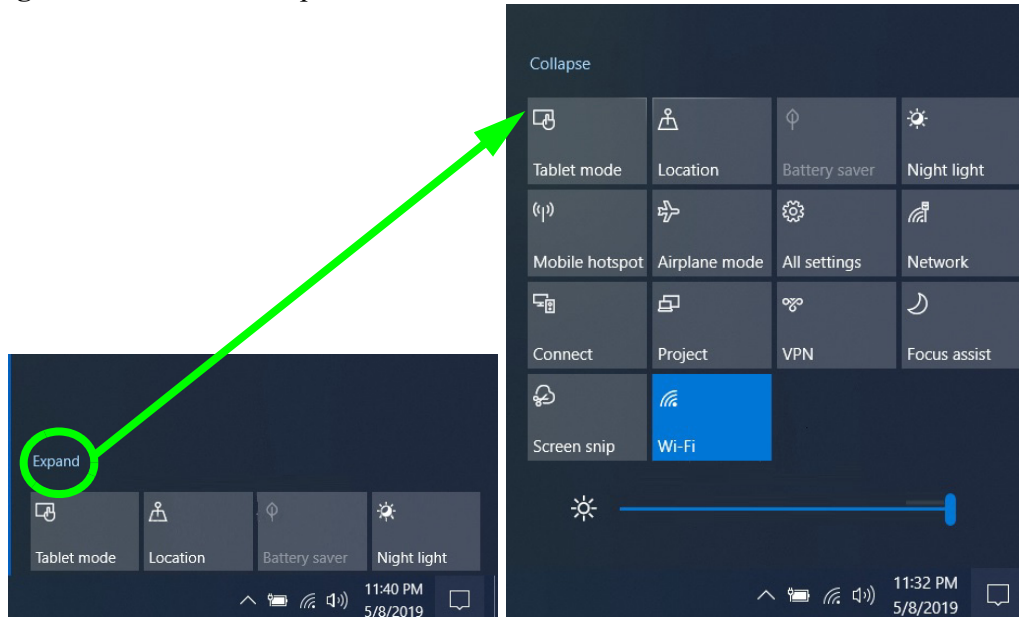
Figure 1 - 20 **- Action Center**

Video Features

You can switch display devices, and configure display options, from the **Display Settings** control panel. 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).

To Configure Displays using Project

1. Attach your display to the appropriate port, and turn it on.
2. Press the ⊞ **+ 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.
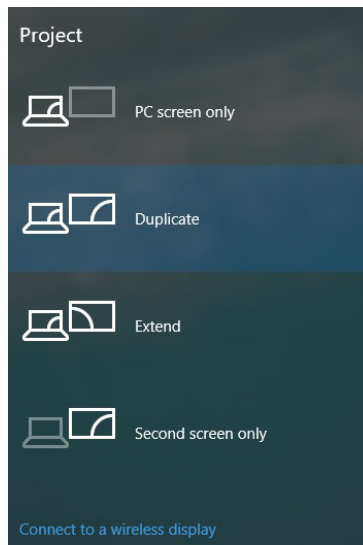
Figure 1 - 21 **- Project (Devices)**

🖉

NVIDIA Video Driver Controls

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

You can also access the control panel by right-clicking the desktop and selecting **NVIDIA Control Panel**.

Quick Start Guide

To access the **Display Settings:**
1. You can quickly adjust the display by right-clicking the desktop and selecting **Display Settings**.
2. Adjust the settings for **Brightness and color**, **Scale and layout**, **Resolution** and **Orientation** from the menus.
3. When and external display is attached you can arrange the display configuration from the **Multiple Displays** menu, and arrange the configuration from **Select and rearrange displays**.
4. Click **Apply** to save any changes made.
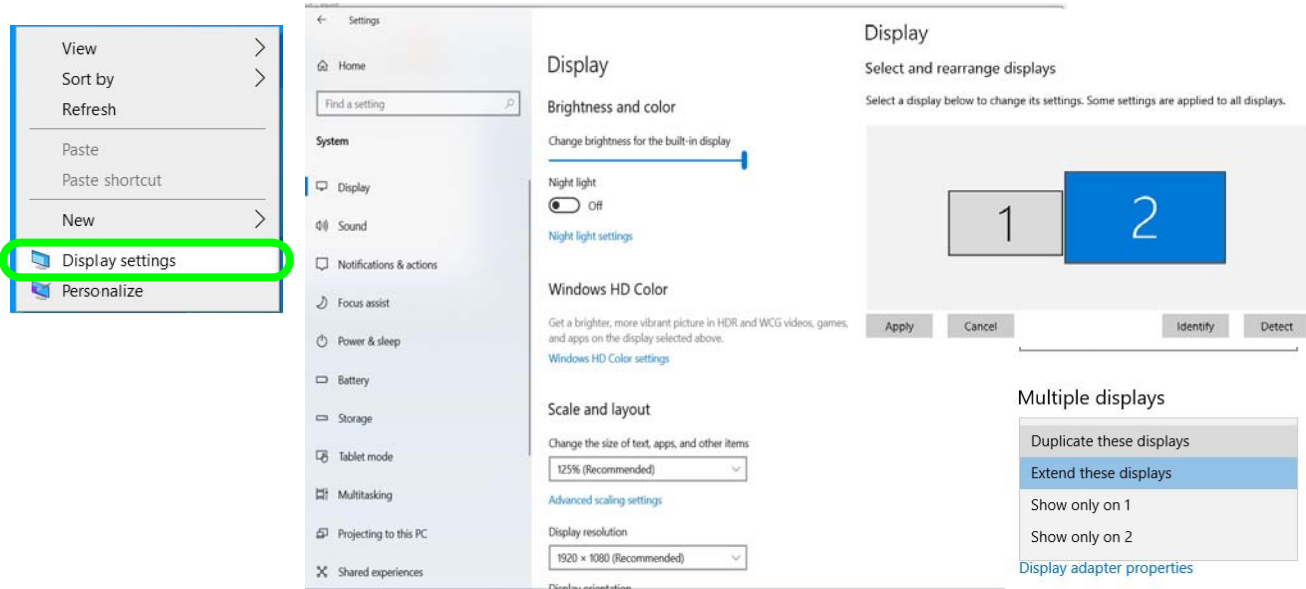
Figure 1 - 22 **- Display Settings**

To access the *NVIDIA Control Panel*:

1. Access the **NVIDIA Control Panel** from the **Start** menu in **Windows** (or right-click the desktop and select **NVIDIA Control Panel**).
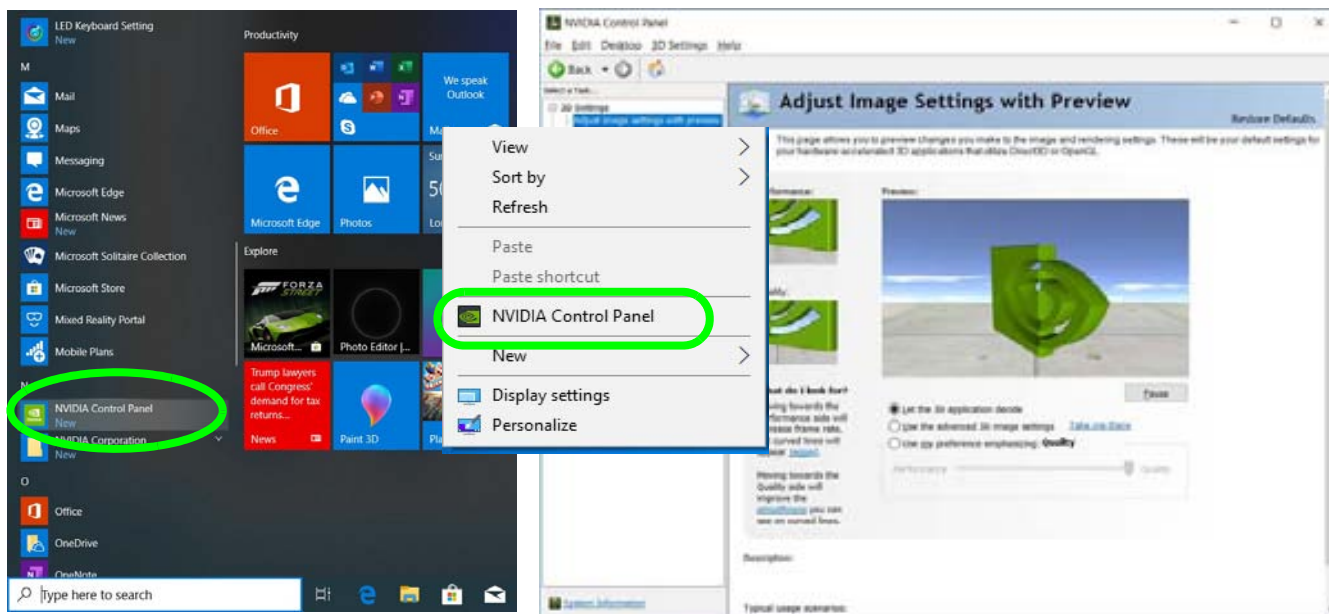
*Make sure you run the **GeForce Experience app** after installing all the drivers (internet connection required), and then restart the computer and run the app a second time.*

Figure 1 - 23 - **NVIDIA Control Panel**

Minimum Screen Resolution Settings

1. *Windows 10* has minimum screen resolution requirements.
2. Right-click a blank area of the Desktop and select **Display Settings**.
3. Adjust the **Resolution** to make sure that it is at least **1024 * 768,** although preferably **1366 * 768** or above.
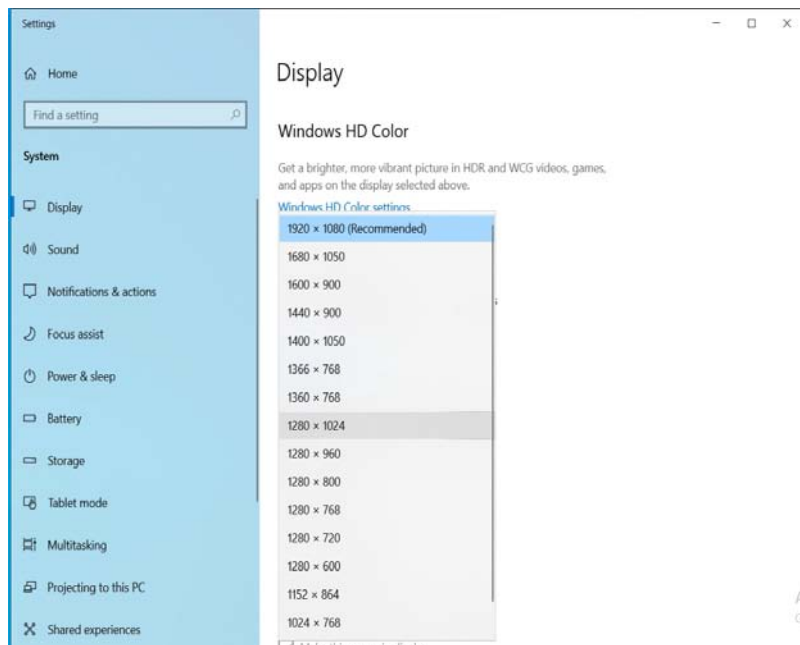
Figure 1 - 24 **- Display (Resolution)**

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 - 36*). 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.
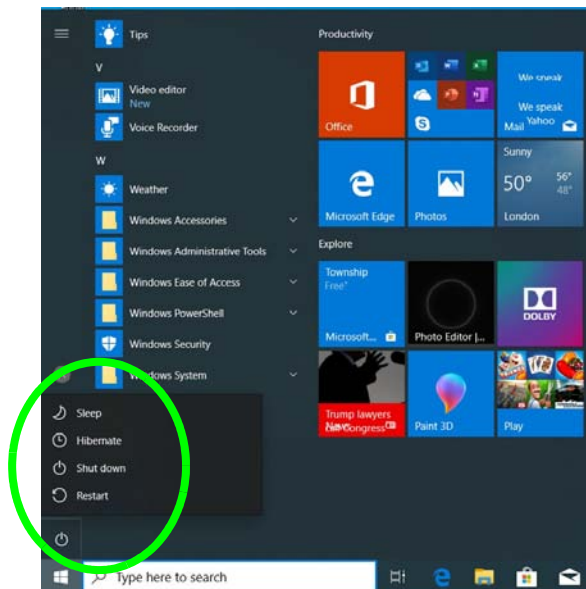
Figure 1 - 25 **- Shut Down/Restart**

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**.

🖉

Adding Hibernate/Sleep to the Power Men

1. Go to the **Power Options** (**Hardware and Sound**) control panel (or go to **Windows Settings > Power & sleep > Additional power settings**).
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.

Figure 1 - 26 - **Context Menu Shut Down or sign out**

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**.

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
- Realtek Audio Console
- Touchpad and Buttons/Mouse

2

☼

**Bottom Cover
Removal Warning**

Do not remove any cov-
er(s) and /or screw(s) for
the purposes of device
upgrade as this may vio-
late the terms of your
warranty.

If you need to replace/
remove the hard disk for
any reason, please con-
tact your distributor/sup-
plier 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 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.

2

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 - 8*).

- MMC (MultiMedia Card) / RSMMC
- SD (Secure Digital) / Mini SD / SDHC / SDXC (up to UHS-II)

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.
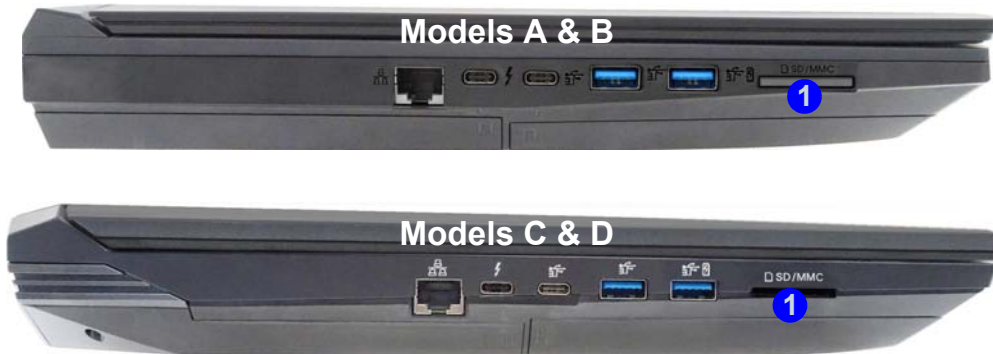
Figure 2 - 1
Left View

1. Card Reader

2

Figure 2 - 2
**Realtek Audio
Console
(Windows Start
Menu)**

Realtek Audio Console

You can configure the audio options on your computer from the **Sound** 🔊 control panel in *Windows*, or from the **Realtek Audio Console** in the **Windows Start** menu. **Make sure you have installed the driver and checked the Microsoft Store for updates (see** *"Audio" on page 4 - 9*). 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)**.
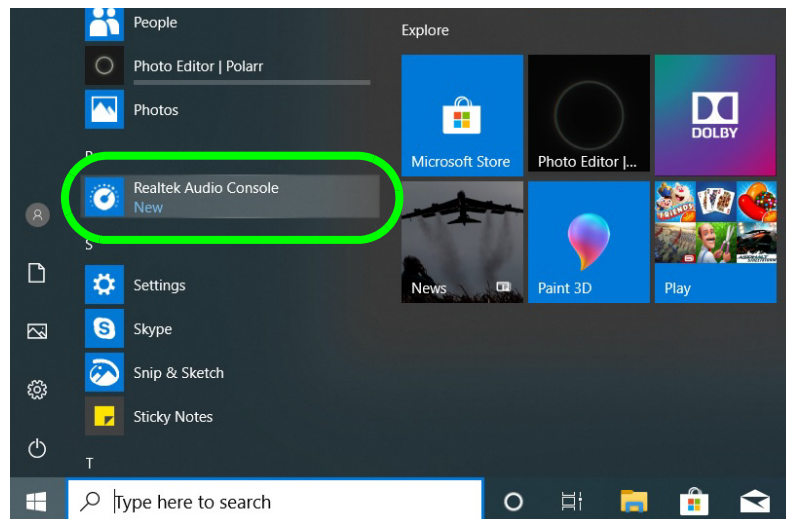
Realtek Audio Console - Main

You can adjust the **Speaker** and **Microphone** levels by using the sliders in the **Realtek Audio Console Main** window.
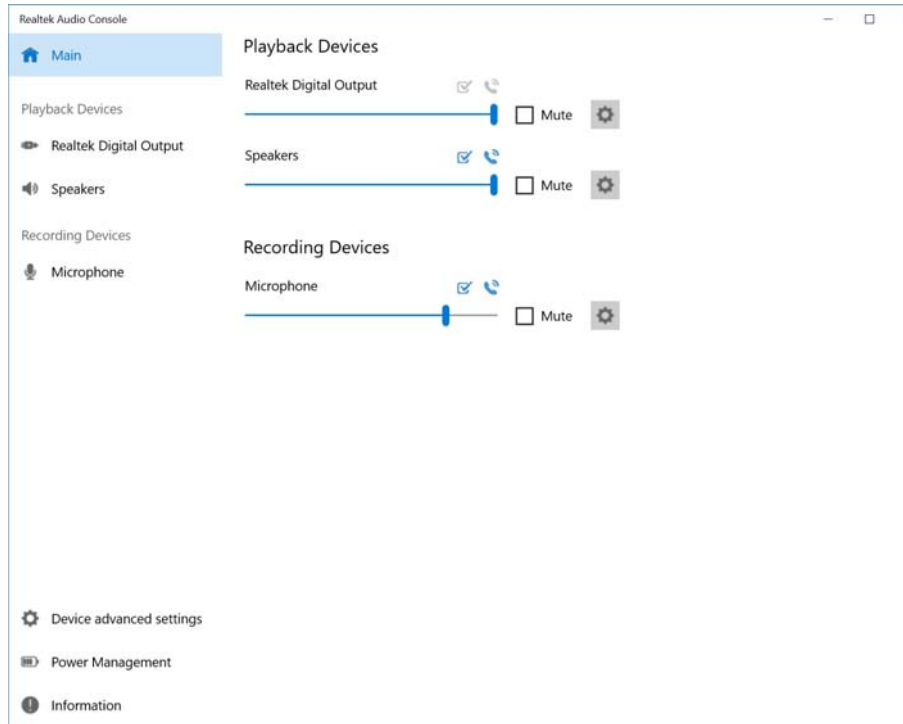
🖉

Volume Adjustment

The sound volume level can be clicking using the volume control icon 🔊 in the *notification area of the taskbar*.
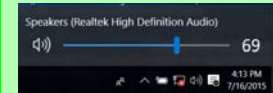
Figure 2 - 3
Realtek Audio Console
(Main)

2

Realtek Audio Console - Speakers

Click **Speakers** to access controls for the format and speaker balance etc.

Figure 2 - 4
Realtek Audio Console (Speakers)
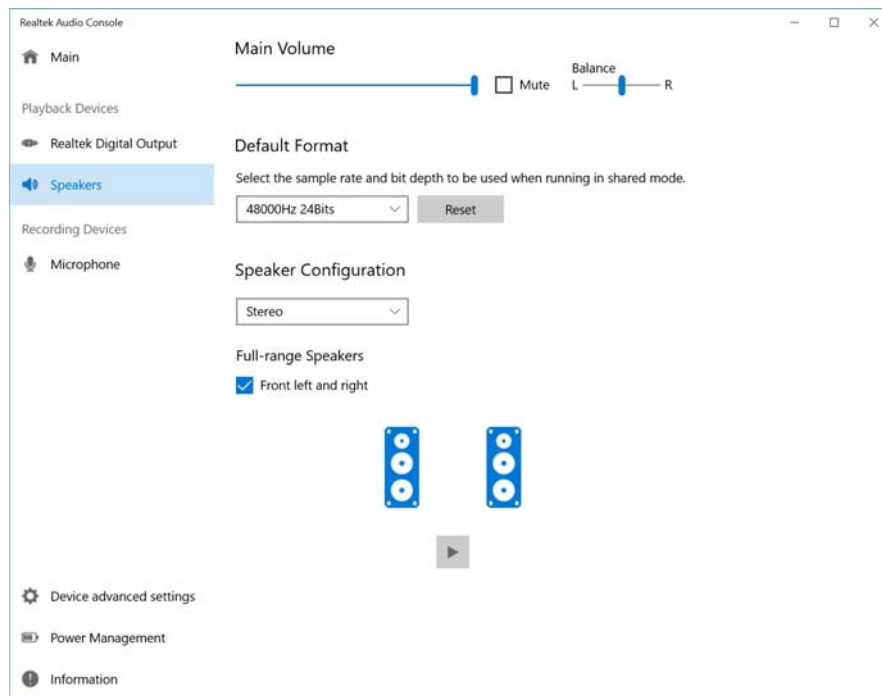
Realtek Audio Console - Microphone

Click **Microphone** to access advanced controls for recording on the microphone. Adjust the recording **Main Volume** level to around **60**, to obtain the optimum recording quality.
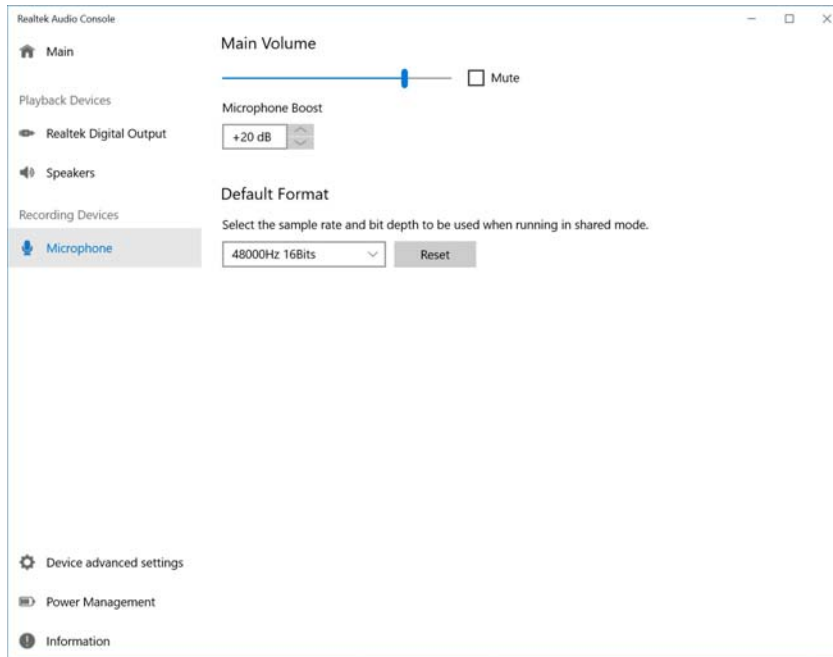
Figure 2 - 5
Realtek Audio Console (Microphone)

2

Figure 2 - 6
Realtek Audio Console - Device Advanced Settings

Realtek Audio Console - Device Advanced Settings

Device Advanced Settings allows for further configuration of the **Connector Settings** and **Recording Device**.

2

Setup for 5.1 or 7.1 Surround Sound

To setup your system for 5.1 or 7.1 surround sound you will need to connect the audio cables to the Headphone & S/PDIF Combo jack, Line-In jack, Line-Out jack and Microphone-In jack (*note: the Line-Out jack is used for 7.1 surround sound only*).

1. Run **Realtek Audio Console** from the Windows **Start** menu.
2. Click **Device advanced settings**.
3. Plug the **front speaker** cables into the **Headphone-Out Jack**.
4. Plug in the other cables (you may require an adapter to connect each cable to the appropriate jack e.g a stereo mini to dual RCA adapter) from your speakers as follows:

- Line-In Jack = Rear Speaker Out
- 2-In-1 Audio Jack (Headphone & S/PDIF Combo) = Front Speaker Out
- Microphone-In Jack = Center/Subwoofer Speaker Out
- Line-Out Jack = Side Speaker Out (and **for 7.1 Surround Sound Only**)

5. As you plug in each cable a dialog "*Which device did you plug in*?" box will pop up.
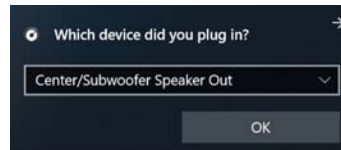
Figure 2 - 7
Realtek Audio Console (Which device....)

6. Select the appropriate device from the drop-down menu according to the speaker plugged-in (e.g. Rear Speaker Out), and then click **OK** to save the setting.
7. The device selected will be indicated in the **Back Panel** menu under **Connector Retasking (Analog)**.

2

Figure 2 - 8
Touchpad Sensitivity

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 install the Touchpad driver (see *"Touchpad" on page 4 - 8*).

Touchpad Sensitivity

The **mouse button zones** at the bottom of the pad measure about **15mm from the bottom** of the pad, and the **left and right buttons** are divided roughly down the middle as illustrated below. 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.

Left Button zone   Right Button zone
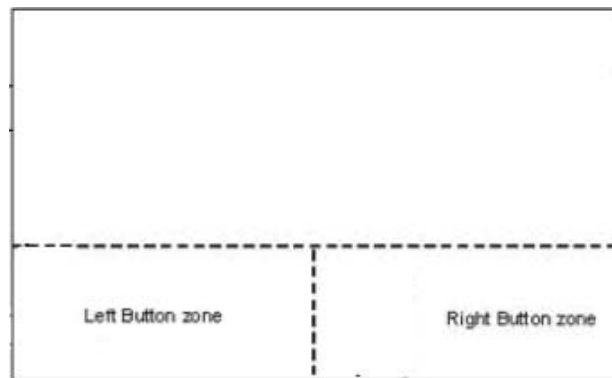
Mouse Properties Control Panel

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.

🎔
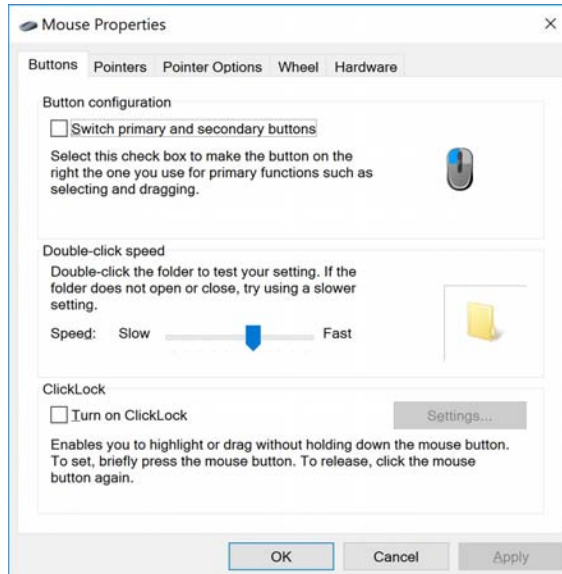
Disabling the Touchpad

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 - 9
Mouse Properties Control Panel - Buttons

2

Figure 2 - 10
**Mouse Properties
Control Panels**
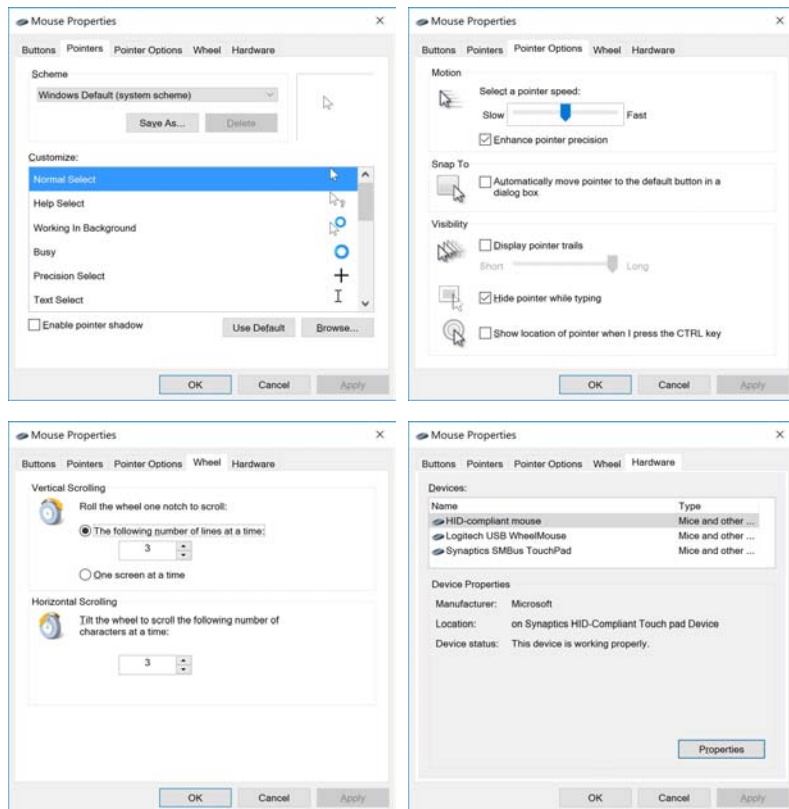
Mouse & Touchpad Devices

You can also configure the functions from the **Mouse or Touchpad** control panels in *Devices* in the *Settings* control panel as follows.

1. Click the **Settings** item in the **Start Menu** (or **All Settings** in the Action Center).
2. Click **Devices**.
3. Click **Mouse** or **Touchpad**.
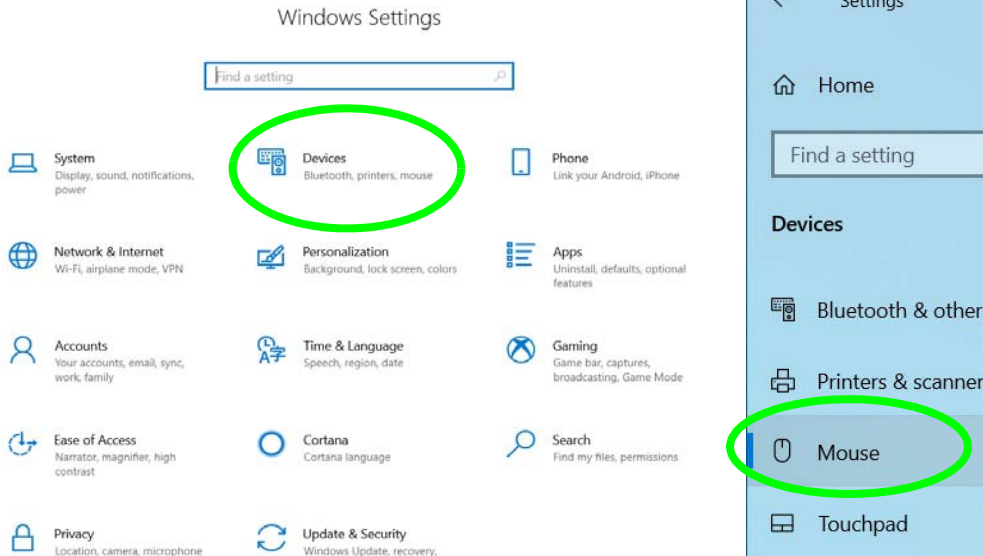
Figure 2 - 11
**Windows Settings
> Mouse/Touchpad**

2

Mouse Settings

You can select the primary mouse button and scrolling options and access Mouse Properties from Additional mouse options.
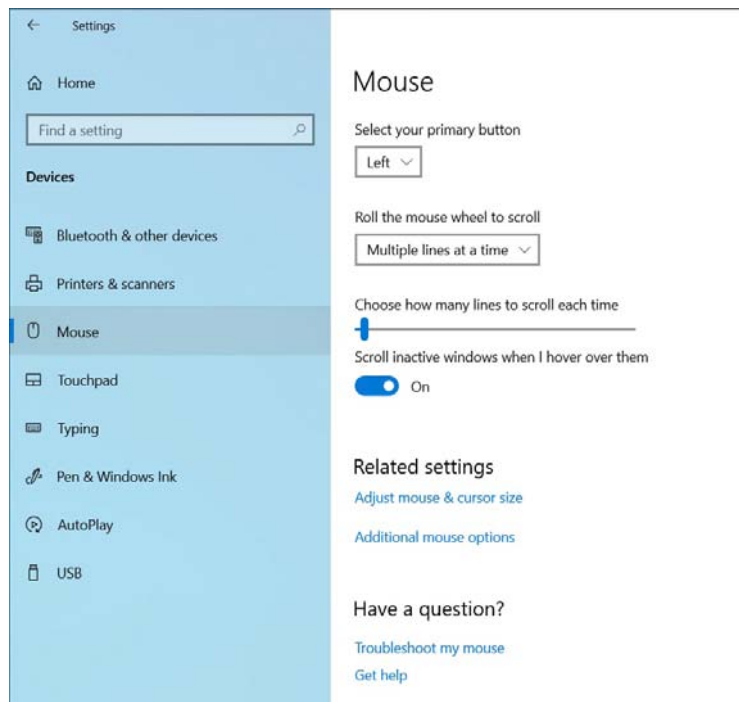
Figure 2 - 12
**Windows Settings
Mouse**

2

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.
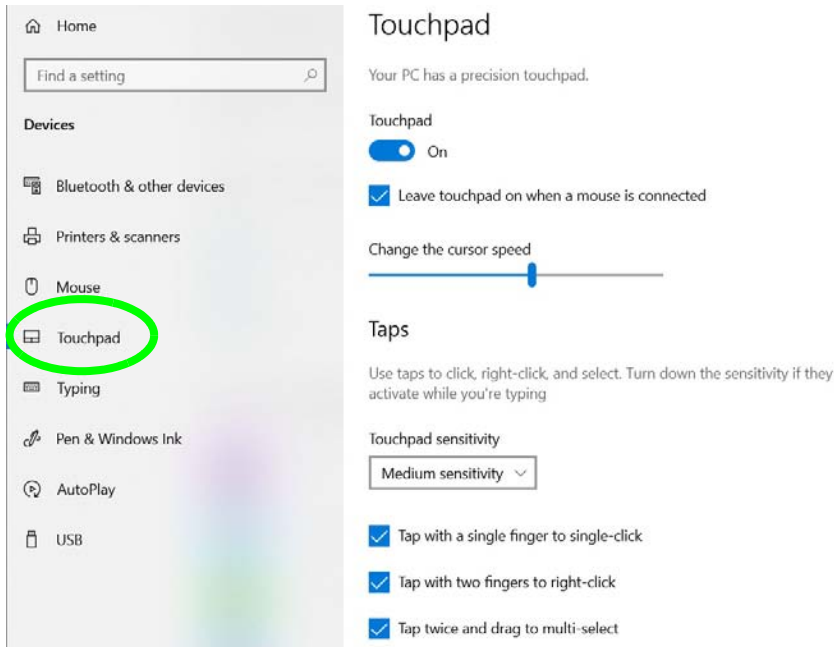
Figure 2 - 13
Windows Settings Touchpad
(*Touchpad turned off when mouse connected*)

2

Touchapd Taps

The **Touchpad Sensitivity** 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.

Click in the check box to enable/disable the different gestures or taps on the surface of the pad to perform specific actions to manipulate documents, objects and applications.
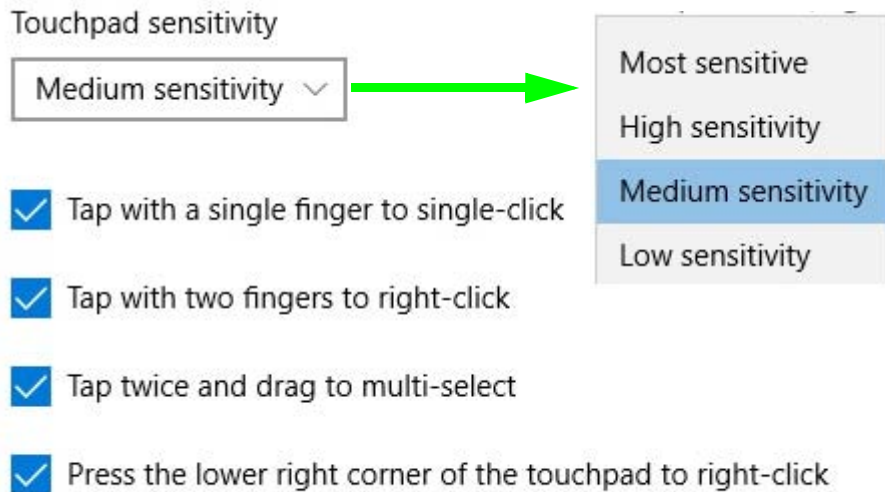
Figure 2 - 14
Windows Settings Touchpad Sensitivity & Taps

Touchapd Scroll and Zoom
Click to enable/disable the **two finger scrolling** and **pinch zooming** gesture.

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).

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.

2

The **three-finger** and **four-finger swipes** and **taps** can be configured for a number of different functions. Select the appropriate function from the drop-down menu.

Figure 2 - 17
Three-Finger Gestures (Swipes & Taps)

Figure 2 - 18
Four-Finger Gestures (Swipes & Taps)

The following is an overview of some of the main gestures you can use with your Touchpad, however these can be configured from the Touchpad menus.
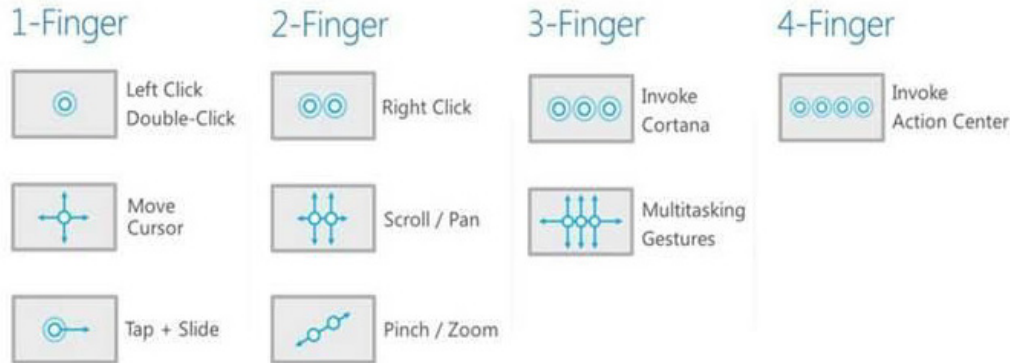
Figure 2 - 19
**Touchpad
Gesture Examples**

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.

3

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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. **When first setting up the computer use the following procedure** (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 and initially set up as below):

• Attach the AC/DC adapter cord to the DC-In jack an the rear of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter and **leave it there for 6 seconds or longer**.

• Remove the adapter cord from the computer's DC-In jack, and then plug it back in again; the battery will now be unlocked.

2. Raise the lid/LCD to a comfortable viewing angle.
3. 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 - 16*.

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.

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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).

3

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**.
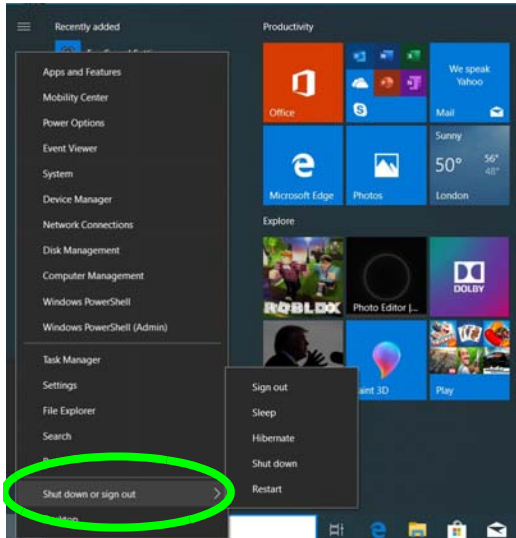
If you want to add Hibernate/Sleep to the Power Menu see .

Figure 3 - 1
Shut Down/Restart
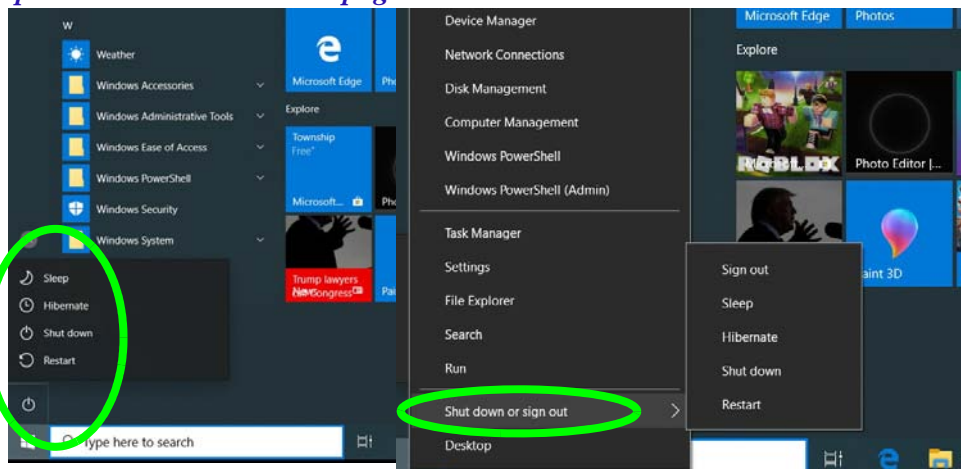
Power Plans

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**.

🖉
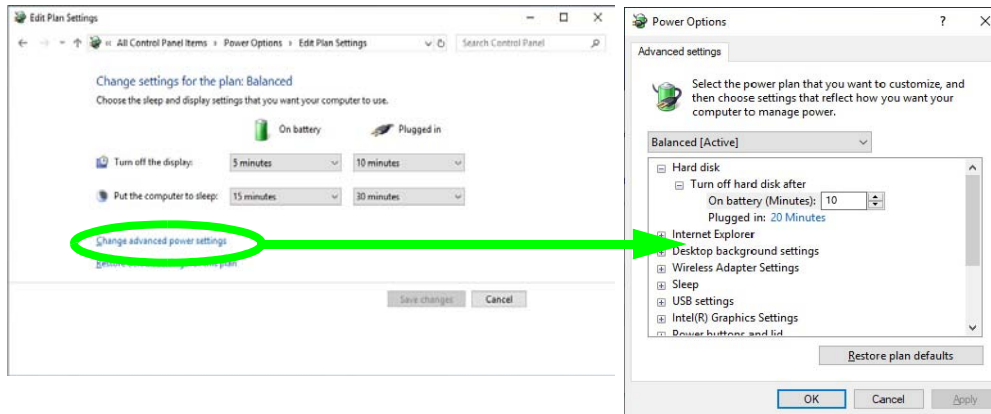
Resuming Operation

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

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
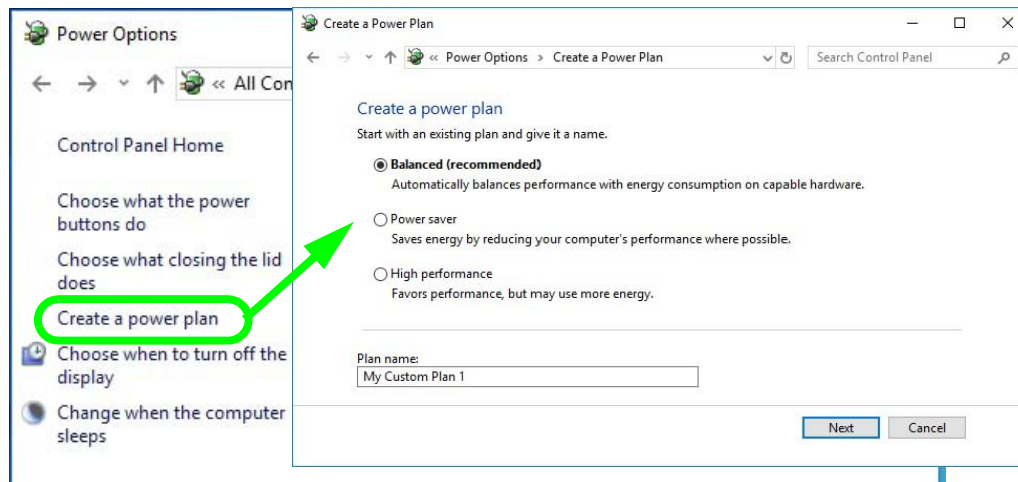
Power-Saving States

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*.

3

> 🔔
> **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 Shutdown states in *Windows.*

3

Hibernate

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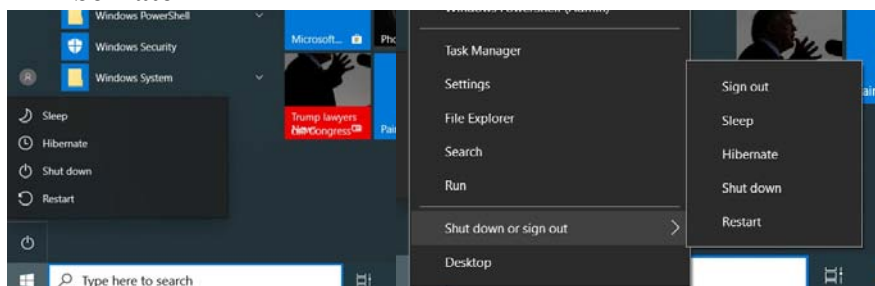
Configuring the Power Buttons

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.

3

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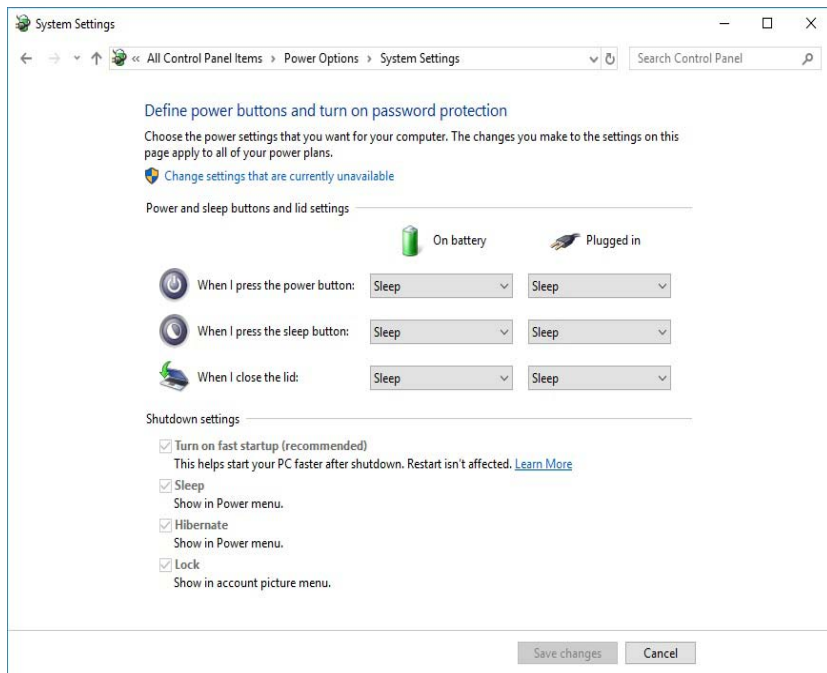
Password Protection

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

3

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 (see page *1 - 42*).
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.
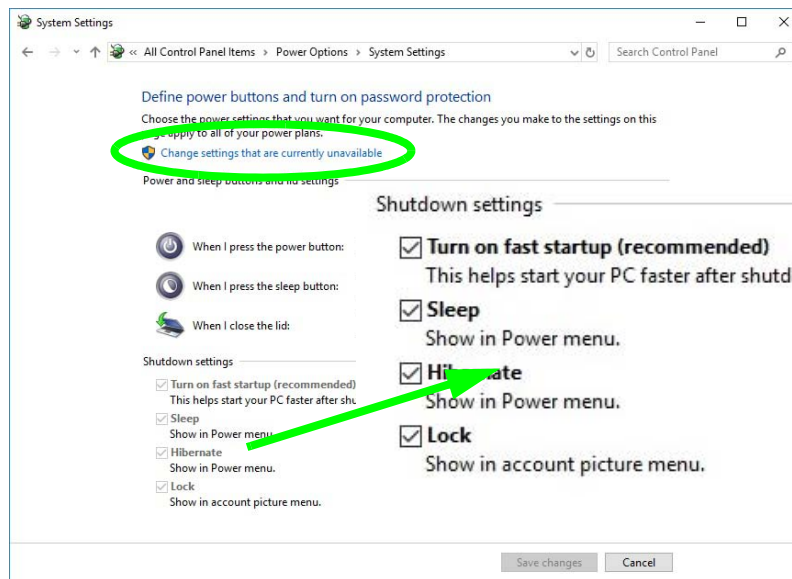
Figure 3 - 6
**Power Options
Define Power
Buttons - Shutdown
Settings**

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 Green	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	Green	Press a Key or Move the Mouse/Touchpad

Table 3 - 1
Resuming Operation

🖉

Power Button

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

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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.

3

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 - 7
Ctrl + Alt + Delete Menu
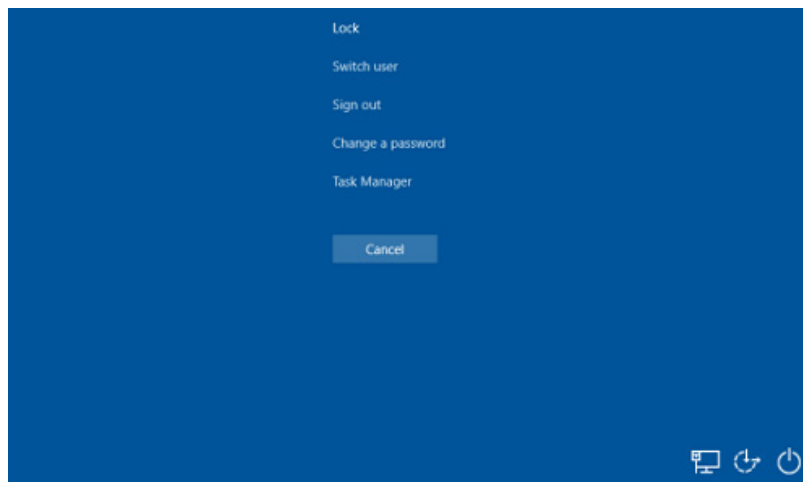
To fully control all the power options (including Hibernate mode) go to the **Power Options** control panel and configure the power button, sleep button and lid to perform the function selected.

Settings Menu Power Controls

The **Settings** item in the **Start Menu** (or via the **Action Center**) 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.
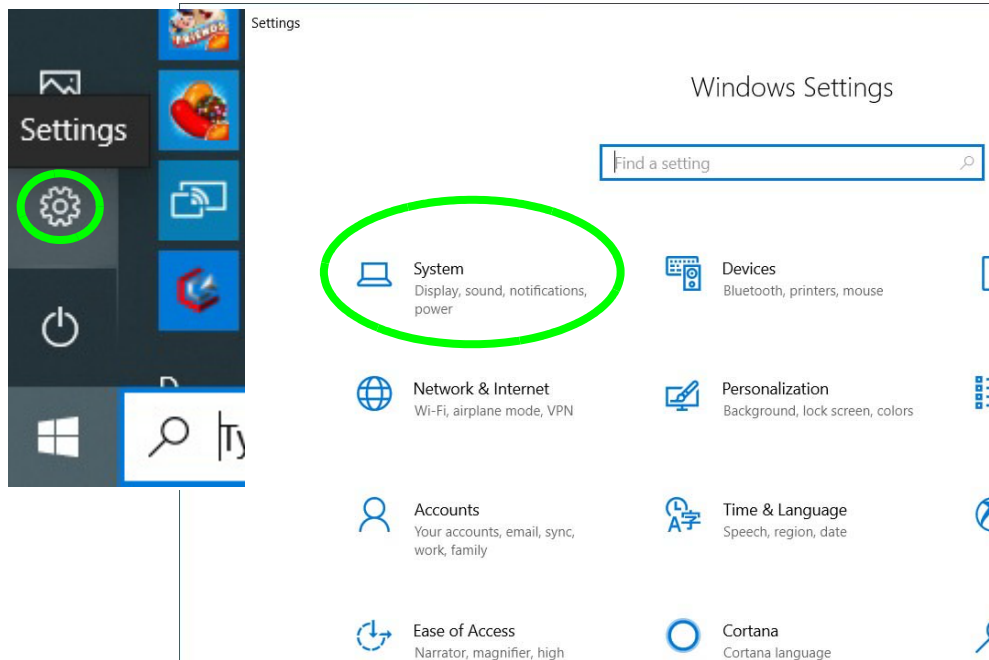
Figure 3 - 8
Settings

3

Battery Saver

Battery in Settings will display the battery level, and by clicking **Battery usage by app** you can see the current state of battery usage by application etc. The **Battery saver** can be level can be adjusted to be turned on if the battery level falls below a certain level to limit background activity and push notifications.
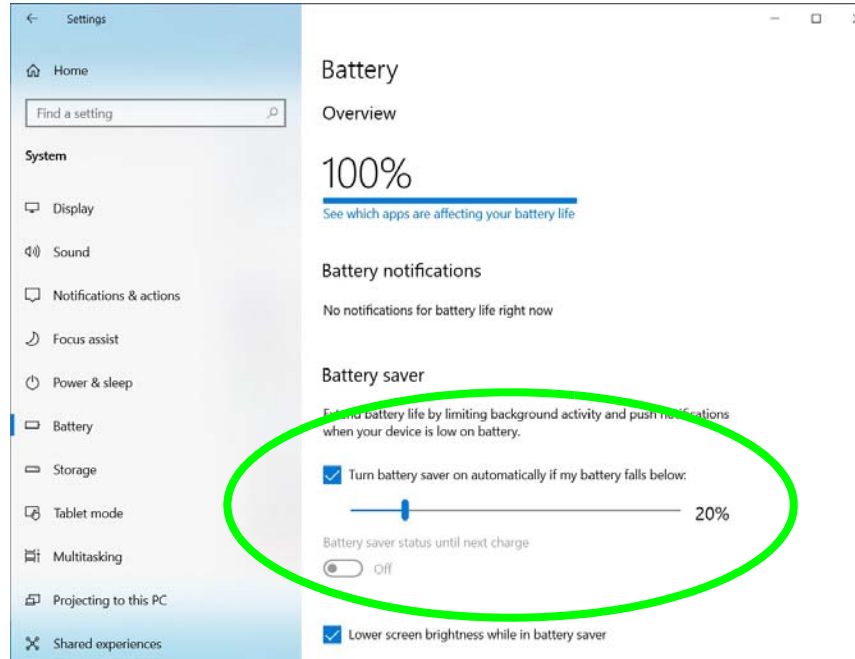
Figure 3 - 9
**Settings > Battery >
Battery Saver**

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.
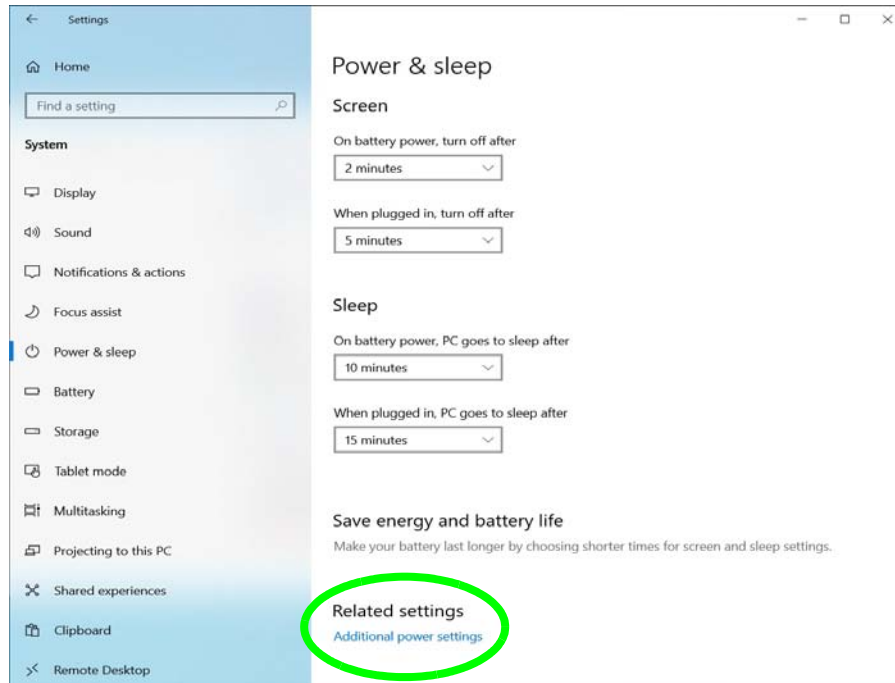
Figure 3 - 10
Settings > Power & Sleep

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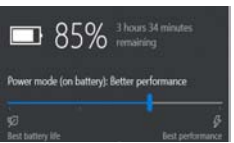
Click the battery icon 🔋 in the notification area to see the current battery level and charge status (you can also click **Power & sleep settings** to access the **Settings** menu to quickly adjust power settings).

Figure 3 - 11
Battery Icon (Notification Area) & Battery Advanced Settings
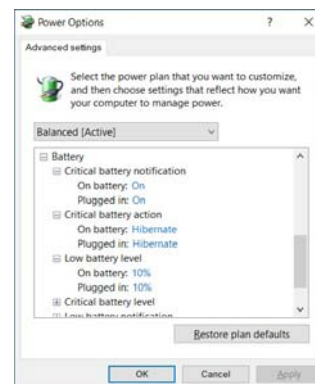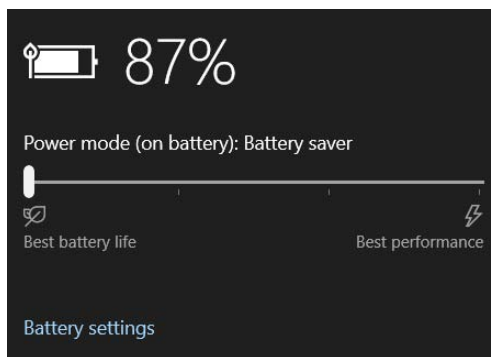
Power Slider Settings

Battery Saver	Better Battery	Better Performance	Best Performance
For DC Only	For AC & DC		
Lowest Power Setting	Lower Power than Default Settings	Slightly Favors Performance Over Power	Favors Performance Over Power
Windows Features Throttled & Screen Brightness Reduced	Default Position		
Auto Enabled at 20% of Battery Capacity			

3

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Battery Saver

Note that some Windows features and background applications may behave differently, or may be blocked, when the system is in Battery Saver mode (check with Microsoft for details).

Table 3 - 2
Power Slider Settings & Notes

3

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.
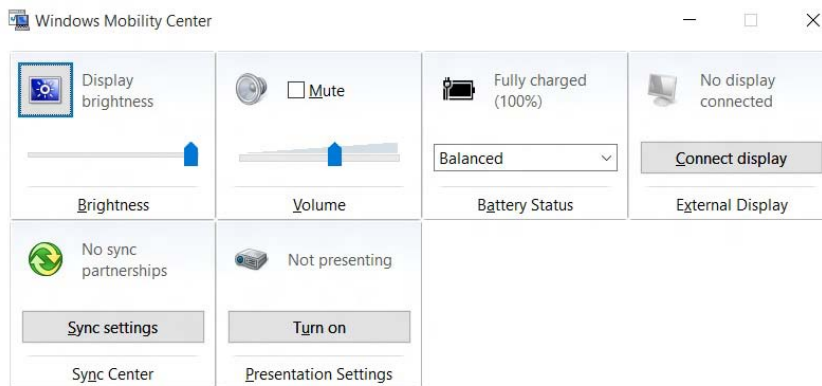
Figure 3 - 12
Windows Mobility Center (Control Panel)

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 recommend that you do not remove the battery yourself. If you do need to re-move the battery for any reason (e.g. long term storage) see *"Battery Removal & 3G/4G SIM Card Insertion" on page 1 - 29*.

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 *"LED Indica-tors" on page 1 - 9* for information on the battery charge status, and to *"Battery FAQ" on page 3 - 21* for more information on how to maintain and properly re-charge the battery pack.

3

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Caution

Danger of explosion if battery is incorrectly re-placed.

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

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**.
3. Click *Change plan settings* (after creating it) and click *Change plan settings > Change advanced power settings*.
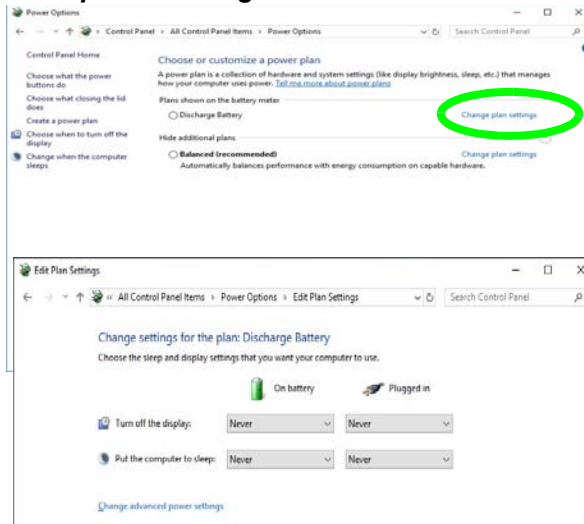
Figure 3 - 13
Power Plan Create

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

Figure 3 - 14
**Power Options
Advanced Settings -
Battery**
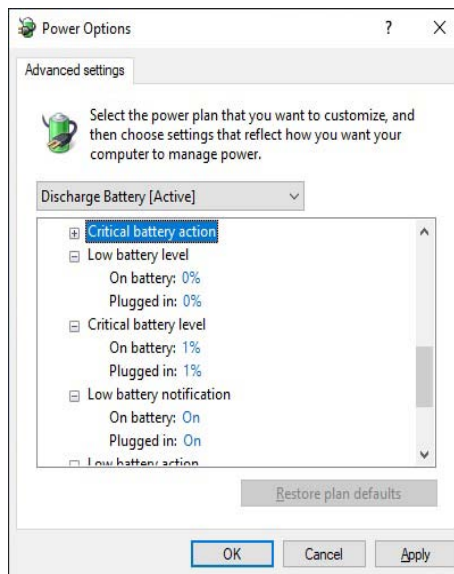
- Low battery level = 0%
- Critical battery level = 1%
- Low battery action = Do Nothing
- Reserve Battery Level = 0%

3

How do I fully charge the battery?
When charging the battery, don't stop until the LED charging indicator light changes from orange to green.

How do I maintain the battery?
Completely discharge and charge the battery at least once every 30 days or after about 20 partial discharges.

Power Management

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*.

4

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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.

4

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 #
Chipset	*Page 4 - 7*	*Setting Up SATA RAID, Optane™ or AHCI Mode*	*Page 6 - 2*
NVIDIA Video (VGA)	*Page 4 - 7*	*Wireless LAN Module*	*Page 6 - 30*
NVIDIA Apps	*Page 4 - 7*	*Fingerprint Reader Module*	*Page 6 - 42*
LAN	*Page 4 - 8*	*Bluetooth & WLAN Combo Module*	*Page 6 - 45*
Card Reader	*Page 4 - 8*	*WLAN AC/AD WiGig Driver Installation* (required for the WLAN & Bluetooth AD combo modules only)	*Page 6 - 51*
Touchpad	*Page 4 - 8*	*Sound Blaster Audio*	*Page 6 - 52*
Intel® HID Filter Driver	*Page 4 - 9*	*Intel® Rapid Storage Technology* (required for hard disks in AHCI & RAID modes)	*Page 6 - 62*
Control Center	*Page 4 - 9*	*PC Camera* (no driver installation required)	*Page 6 - 75*
MEI Driver	*Page 4 - 9*	*Trusted Platform Module* (no driver installation required)	*Page 6 - 82*
Thunderbolt	*Page 4 - 9*	*3G/4G Module* (no driver installation required)	*Page 6 - 88*
Audio	*Page 4 - 9*		

Table 4 - 1 **- Driver Installation**

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 **hotfixes** from Microsoft). See *"Windows Update" on page 4 - 11* 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.

4

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.

4

Driver Installation Procedure

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

Chipset

Note: While installing the Chipset driver the screen may resize several times, however this is normal behavior.

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

NVIDIA Video (VGA)

1. Click **2.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** 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).

6. **Restart the computer and run the application again after restart**.

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

NVIDIA Apps

1. Click **3.Install NVIDIA Apps > 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.

4

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.*

Note if your system does not include a WLAN Qualcomm Atheros 1535/1550 WLAN Combo module, you will still need to ***download the "Killer Control Center" app from the internet to support your LAN connection***.

1. Click **4.Install LAN Driver > Yes**.
2. Click **Next**.
3. Select the language for the installation and click **Next**.
4. Click **Next > Install**.
5. Click **Finish** (*make sure the **Download Killer Control Center tickbox is ticked** to download the app if you are connected to the internet*).
6. **You can then download the Killer Control Center App from the Microsoft Store** but you will need to have a working internet connection.
7. After the driver is installed an automatic browser window will pop-up and you can click the "**Get**" button to start the installation.
8. Alternatively click the **Start** menu in Windows to access the **Microsoft Store App** tile under **Explore**.
9. You can then search by typing "**Killer Control Center**" in the search window (click the magnifying glass icon in the top right corner of the screen) and click to install the App.
10. When just installed the **Killer Control Center** will appear in the **Windows Start** menu.

Card Reader

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

Touchpad

1. Click **6.Install Touchpad Driver > Yes**.
2. Click **OK**.
3. Click **Restart Now** to restart your computer.

Intel® HID Filter Driver

1. Click **7.Install HID Filter Driver > Yes**.
2. Click **Next**.
3. Click **Yes** to accept the license.
4. Click **Next**.
5. Click Finish to restart the computer.

Control Center

Note: Make sure you have installed the Touchpad driver before installing the Control Center AP.

1. Click **8.Install Control Center AP > Yes**.
2. Click **Next > Install**.
3. Click **Finish** to restart your computer (see *"Control Center" on page 1 - 11* and *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**.

Thunderbolt

1. Click **10.Install Thunderbolt Driver > Yes**.
2. Click the check box to accept the license and then click **Install**.
3. Click **Finish**.

Audio

1. Click **11. Install Audio Driver > Yes**.
2. Click **Next**.
3. Click **Finish** to restart the computer.
4. **Realtek Audio Control Panel** will download but you will need to have a working internet connection.
5. Click the **Start** menu in Windows to access the **Microsoft Store App** tile under **Explore**.
6. Click the **Sign in** icon and select **Downloads and updates**.
7. Click **Check for Updates**.
8. A list of apps being downloaded will pop-up.
9. To prioritize the Realtek audio driver you can click **Pause all** to pause the download queue.

10. Click on **Realtek Audio Control** and click on the resume icon ⟳ to download the driver.
11. When just installed the **Realtek Audio Console** will appear in the **Windows Start** menu.
12. **Make sure you install the Creative Sound Blaster driver after installing all the system drivers, as this driver is required for audio configuration** (see *"Sound Blaster Audio" on page 6 - 52*).
13. If **you need to uninstall the audio driver** for any reason, and then reinstall it, **make sure you reinstall the Creative Sound Blaster driver**.

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

It is recommended that you install the **Sound Blaster Audio** application (see *"Sound Blaster Audio" on page 6 - 52*) and **Intel Rapid Storage Technology** driver (see *"Intel® Rapid Storage Technology" on page 6 - 62* - required for AHCI & RAID mode).

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Windows Update

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

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

1. Click the **Start Menu** and select the **Settings** item.
2. Click **Update** & Security.
3. Click **Check for updates** (Windows Update).
4. The computer will now check for updates (you need to be connected to the internet).
5. The system will install any available 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**

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.

5

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**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.

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**BIOS Settings
Warning**

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

5

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.
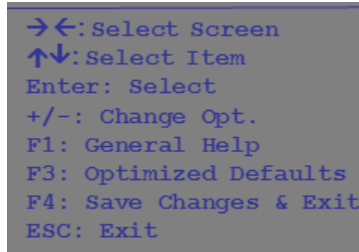
To see the boot options press **F7.**

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
```

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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

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.

5

Main Menu

Figure 5 - 2
Main Menu

```
          Aptio Setup Utility – Copyright (C) 2017 American Megatrends Inc.
  Main  Advanced  Security  Boot  Exit

  ▶ SATA Port 0 Not Present                              Set the Date. Use Tab to
  ▶ SATA Port 2 TOSHIBA MQ01AB(500.1GB)                  switch between Data elements.
  ▶ SATA Port 3 Not Present
  ▶ SATA Port 4 Not Present

  ▶ OffBoard SATA Controller Configuration
  ▶ OffBoard Nvme Controller Configuration

    System Date:                [Fri 10/06/2017]
    System Time:                [09:56:25]

    Intel(R) Core(TM) ********** **********

    ME FW Version               **********        →←:Select Screen
                                                  ↑↓:Select Item
    System Memory:              640 KB            Enter: Select
    Extended Memory:            4096 MB (DDR4)    +/-: Change Opt.
                                                  F1: General Help
    MB Series:                  **********        F3: Optimized Defaults
    BIOS Revision:              **********        F4: Save Changes & Exit
    KBC/EC firmware Revision:   **********        ESC: Exit

    VGA Card:                   **********
    VBIOS Revision:             **********
    VBIOS Build Date:           **********

          Version ******** Copyright (C) 2017 American Megatrends. Inc.
```

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

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/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/ VGA Card / VBIOS Re-
vision/Build Date / Mac Address (Main Menu)*
This item contains information on the BIOS version, VGA information and the iden-
tifier address for the device on a network, and is not user configurable.

5

Advanced Menu

Figure 5 - 3
Advanced Menu

```
                    Aptio Setup Utility - Copyright (C) 2017 American Megatrends Inc.
        Main  Advanced  Security  Boot  Exit

    ▶ Advanced Chipset Control                                 Advanced Chipset Control
    ▶ Intel(R) Thunderbolt
    ▶ OverClocking Performance Menu

      SATA Mode:                         [AHCI Mode]
      Power On Boot Beep:                [Disabled]
      Battery Low Alarm Beep:            [Disabled]
      Show AC Always Fan on item:        [Disabled]




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



                    Version ******** Copyright (C) 2017 American Megatrends. Inc.
```

Advanced Chipset Control (Advanced Menu)
The sub-menu here allows you to change the settings for the **GPU Performance Scaling, FlexiCharger, VT-d**, **Fast Boot** and **DDI Control** it as required.

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.

```
                 Aptio Setup Utility - Copyright (C) 2017 American Megatrends Inc.
      Advanced

      Advanced Chipset Control                              If you set the FlexiCharger
      GPU Performance Scaling        Disabled               to "Enabled", note that over
      FlexiCharger                   [Enabled]              time the battery meter's
      Start Charge                   [95%]                  reading accuracy will
      Stop Charge                    [100%]                 deteriorate.
      VT-d                           [Enabled]
      Fast Boot                      [Disabled]
      DDI Control                    [DDI to DP]




                                                            →←:Select Screen
                                                            ↑↓:Select Item
                                                            Enter: Select
```

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

BIOS Utilities

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.

Fast Boot (Advanced Menu > Advanced Chipset Control)
Enabling this function will boot the system with the minimum set of devices required in order to so in order to achieve a faster boot time.

DDI Control (Advanced Menu > Advanced Chipset Control)
You can change DDI (Display Digital Interface) control from DDI to DP (Display-Port) or DDI to TBT (Thunderbolt) here to support external displays connected to these ports. See sidebar.

Thunderbolt Port Set for Display

If you want to use the Thunderbolt Port for connecting display devices then set the **DDI Control to DDI to TBT**.

When the Thunderbolt Port is set for display then **DisplayPort 1** (**5** in **Figure 1 - 12**) will be turned off (see page *1 - 21*).

5

Intel(R) Thunderbolt Technology
(Advanced Menu > Intel(R) Thunderbolt)
You can enable/disable (***disabling the port will also disable its functionality as a USB port***) the Intel(R) Thunderbolt port support from this menu (see over). The Thunderbolt port is enabled by default as a data port in Unique ID mode.

```
Aptio Setup Utility - Copyright (C) 2018 American Megatrends Inc.
  Advanced

  Intel(R) Thunderbolt Configuration                Enable or Disable Intel(R)
  Intel Thunderbolt Technology        [Enabled]     Thunderbolt Function.
  Security Level                      [Unique ID]




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

             Version ******** Copyright (C) 2018 American Megatrends. Inc.
```

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Thunderbolt Port Set for Display

If you want to use the Thunderbolt Port for connecting display devices then set the **DDI Control to DDI to TBT**.

When the Thunderbolt Port is set for display then **DisplayPort 1** (**5** in **Figure 1 - 12**) will be turned off (see page *1 - 21*).

Figure 5 - 5
**Advanced Chipset Control
(Advanced Menu)**

Security Level
(Advanced Menu > Intel(R) Thunderbolt)
You can set the security level to **Legacy Mode**, **Unique ID**, **One time saved key** or **DP only**.

- **Legacy mode** will allow any devices to be connected.
- You can set the port to allow only devices with a **Unique ID** to connect. If the unique ID is not located then you will be asked to confirm the connection.
- If you set a **one time saved key** only then the host will write a unique ID to a device to ensure only approved devices can connect.
- Setting the port to **DP only** will only allow display devices to connect to the port, and no data connections will be allowed.

Overclocking Performance Menu (Advanced Menu)
This menu allows you to adjust settings for processor and performance, and allows you to set **Power Limits** and the **CPU VR Custom Setting** for voltage regulation. A warning will appear to remind you that overclocking may damage hardware, and that you must be sure that the CPU and memory support overclocking before enabling the feature. See also *"CPU / Memory Overclocking Support" on page B - 11*.

5
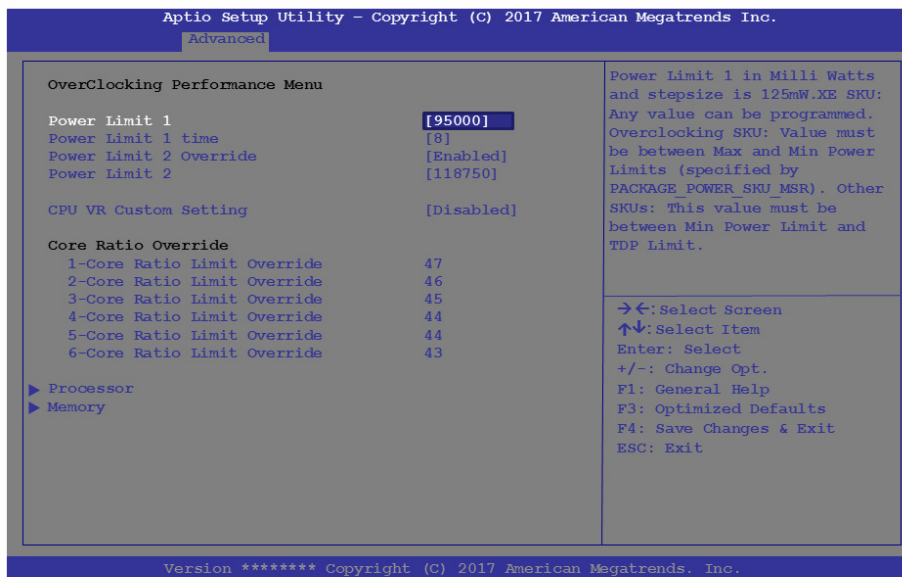
沙
Overclocking Issues

If you get any errors due to changing overclocking settings, e.g. a black screen, then **restart the computer**, **hold and press the Fn + D key combination**, and then **press the power button** at startup.

This will change the overclocking settings back to the defaults.

Note **overclocking** the system (CPU/GPU) may cause hardware damage, reduce system stability, the useful life of the system and affect system data integrity, and **is enabled at the user's own risk**, and is **not covered in the warranty terms**.

Figure 5 - 6
Overclocking Performance Menu

☀️

SATA Mode Selection

If you have installed the *Windows* OS with either **AHCI or Intel RST (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). Note the following:

Intel RST (RAID) mode with UEFI disabled (legacy mode) does not support PCIe SSDs.

AHCI mode with the IRST driver installed does not support PCIe SSDs.

Figure 5 - 7
SATA Mode Change Notification

SATA Mode (Advanced Menu)
You can configure SATA (Serial ATA) control to operate in **AHCI** (Advanced Host Controller Interface) or **Intel RST Premium With Intel Optane System Acceleration** (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, Optane™ 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** (see *"IRST Driver Installation" on page 6 - 62*).

If you wish to change your SATA mode to/from AHCI/Intel RST (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.

```
┌──── SATA Operation is being changed! ────┐
│                                          │
│  Attention! Changing this setting may    │
│  prevent your operating system from booting │
│       or require a reinstall.            │
│                                          │
│                                          │
│              ┌────────┐                  │
│              │   OK   │                  │
│              └────────┘                  │
└──────────────────────────────────────────┘
```

5

Intel Optane Options

Intel® Optane™ is a combination of a compatible memory device and **Intel Rapid Technology software**. This combination is designed to speed up your system performance by caching boot data, executables, frequently accessed data and system page files to an non volatile, low latency Intel® Optane™ SSD. There are 2 available Intel® Optane™ SSD options for this system:

- **Intel® Optane™ Memory Series** - A single Intel® Optane™ SSD **automatically configured as a single volume disk,** designed to speed up your system without any data storage options.

- **Intel® Optane™ Memory H10 with Solid State Storage** - A single Intel® Optane™ hybrid SSD **automatically configured as two volume disks** designed to both speed up your system and also providing a storage volume disk (e.g. a disk on which to install your Windows OS etc.).

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Intel Optane Hybrid H10 System Installation

If you need to reinstall the Windows operating system, make sure that you **install it on the larger volume member disk.**

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Optane Version

If you are unsure of which Optane version is installed on your computer you can check in the **BIOS (Advanced > Intel(R) Rapid Storage Technology > Intel Optane)** under Intel Optane. Click **Intel Optane **GB** and the number of volume member disks will be displayed (if **2 volumes are displayed the system supports Optane H10**).

You can also check in the **Intel® Rapid Storage Technology** application (if **2 volumes are displayed the system supports Optane H10**).

5

Clearing Intel Optane

If you need to clear Intel Optane Memory data then follow the process outlined in *"Clearing Intel® Optane™" on page 6 - 27*, **however note you will need to back up your system first** as the procedure will result in the system being required to be reinstalled and data and files will be lost in the process.

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.

Show AC Always Fan on item (Advanced Menu)
Enable/disable the fan always on item when the system is AC powered from here.

5

Security Menu

```
              Aptio Setup Utility - Copyright (C) 2017 American Megatrends Inc.
    Main  Advanced  Security  Boot  Exit

      Set Supervisor Password:                         Secure Boot mode selector.
      Set User Password:                               'Custom' Mode enables users to
      Password on boot:          [Disabled]            change Image Execution policy
                                                       and manage Secure Boot Keys.
      System Mode                Setup
      Secure Boot                Disabled

      Secure Boot                [Enabled]
      Secure Boot Mode           [Standard]

    ▶ TPM Configuration
                          ┌──── Secure Boot Mode ────┐
                          │ Standard                 │
                          │ Custom                   │
                          └──────────────────────────┘
                                                       →←:Select Screen
                                                       ↑↓:Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F3: Optimized Defaults
                                                       F4: Save Changes & Exit
                                                       ESC: Exit

              Version ******** Copyright (C) 2017 American Megatrends. Inc.
```

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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.

Figure 5 - 8
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**).

> ## ⏰
> **Password Warning**
>
> If you set a boot pass-word (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 ven-dor and you may lose all of the information on your hard disk.

5

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 pass-word.*

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 pass-word.*

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*".

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 - 21*). 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

```
          Aptio Setup Utility - Copyright (C) 2017 American Megatrends Inc.
            Security

    Factory Key Provision              [Enabled]          Install factory default keys
                                                          on next re-boot only when
  ▶ Reset To Setup Mode                                   System in Setup Mode
  ▶ Restore Factory Keys
  ▶ Export Secure Boot variables
  ▶ Enroll Efi Image

    Secure Boot variable |   Size|Keys#| Key Source
  ▶ Platform Key(PK)     |    832|    1| Factory
  ▶ Key Exchange Keys    |   1560|    1| Factory
  ▶ Authorized Signatures|   3143|    2| Factory
  ▶ Forbidden  Signatures|   3724|   77| Factory
  ▶ Authorized TimeStamps|      0|    0| No Key
  ▶ OsRecovery Signatures|      0|    0| No Key

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

          Version ******** Copyright (C) 2017 American Megatrends. Inc.
```

Figure 5 - 9
**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 Security Device Support. 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 (see *"Trusted Platform Module" on page 6 - 82* for details).

Figure 5 - 10
Security Device Support

```
            Aptio Setup Utility — Copyright (C) 2017 American Megatrends Inc.
              Security

     Security Device Support          [Enable]              Enable or disable BIOS Support
     Pending operation                [None]                for TPM 2.0. security device.
     TPM20 Device Found                                     TPM 2.0 is only supported if
                                                            UEFI Boot is Enabled. The O.S
                                                            will not show Security
                                                            Device. TCG EFI protocol and
                                                            INT1A Interface will not be
                                                            available.



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


            Version ******** Copyright (C) 2017 American Megatrends. Inc.
```

Boot Menu

```
            Aptio Setup Utility - Copyright (C) 2017 American Megatrends Inc.
   Main  Advanced  Security  Boot  Exit

   Boot Option Priorities                         Sets the system boot order
   Boot Option #1          [Windows Boot Manager
                           (P2: TOSHIBA
                           MQ01ABF050)]

 ▶ UEFI Setting




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




            Version ******** Copyright (C) 2017 American Megatrends. Inc.
```

Figure 5 - 11
Boot Menu

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**.

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.

5

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

```
Aptio Setup Utility — Copyright (C) 2017 American Megatrends Inc.
 Main  Advanced  Security  Boot  Exit

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

 Boot Override
 Windows Boot Manager (P2: TOSHIBA MQ01ABF050)

 Launch EFI Shell from filesystem device

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

        Version ******** Copyright (C) 2017 American Megatrends. Inc.
```

Figure 5 - 12
Exit Menu

5

Click *Save Changes and Reset* to save all changes made. Choosing to *Discard Changes*, or *Exit Discarding Changes*, will wipe out any changes you have made to the *Setup*. You can also choose 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, Optane™ or AHCI Mode
- Wireless LAN Module
- Killer Control Center
- Fingerprint Reader Module
- Bluetooth & WLAN Combo Module
- WLAN AC/AD WiGig Driver Installation
- Sound Blaster Audio
- Intel® Rapid Storage Technology
- PC Camera
- Trusted Platform Module
- 3G/4G Module

6

Setting Up SATA RAID, Optane™ or AHCI Mode

Note that your system can be set up as a RAID OR to support Intel® Optane™, it cannot be set to support both systems.

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 - 62*)

Intel® Optane™

Intel® Optane™ is a combination of a compatible memory device and **Intel Rapid Technology software**. This combination is designed to speed up your system performance by caching boot data, executables, frequently accessed data and system page files to an non volatile, low latency Intel® Optane™ SSD.

Contact your distributor or supplier to see if your system supports this technology.

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 - 5*) you will require **at least two identical** (see sidebar) HDDs/SSDs.

Intel Optane Options

Intel® Optane™ is a combination of a compatible memory device and **Intel Rapid Technology software**. This combination is designed to speed up your system performance by caching boot data, executables, frequently accessed data and system page files to an non volatile, low latency Intel® Optane™ SSD. There are 2 available Intel® Optane™ SSD options for this system:

- **Intel® Optane™ Memory Series** - A single Intel® Optane™ SSD **automatically configured as a single volume disk,** designed to speed up your system without any data storage options.

- **Intel® Optane™ Memory H10 with Solid State Storage** - A single Intel® Optane™ hybrid SSD **automatically configured as two volume disks** designed to both speed up your system and also providing a storage volume disk (e.g. a disk on which to install your Windows OS etc.).

🔔

Intel Optane Hybrid H10 System Installation

If you need to reinstall the Windows operating system, make sure that you install it on the larger volume member disk.

🖉

Optane Version

If you are unsure of which Optane version is installed on your computer you can check in the **BIOS (Advanced > Intel(R) Rapid Storage Technology > Intel Optane)** under Intel Optane. Click **Intel Optane **GB** and the number of volume member disks will be displayed (if **2 volumes are displayed the system supports Optane H10**).

You can also check in the **Intel® Rapid Storage Technology** application (if **2 volumes are displayed the system supports Optane H10**).

6

Intel® Rapid Storage Technology Application

Make sure you install the **Intel® Rapid Storage Technology** application if you have set up your HDDs/SSDs in **AHCI**, **RAID**, **OR Optane™** mode (see *"Intel® Rapid Storage Technology" on page 6 - 62*).

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.**

After setting the SATA mode to **Intel® Optane™ and installing the Intel® Rapid Storage Technology** application, DO NOT uninstall the **Intel® Rapid Storage Technology** application.

See *"RAID Setup Procedure" on page 6 - 6* or *"Intel® Optane™ Setup Procedure" on page 6 - 23* for further details.

Note that your system can be set up as a RAID OR to support Intel® Optane™, it cannot be set to support both systems.

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

Table 6 - 1
RAID Levels

🔔

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 Hard Disks/Solid State Drives

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

🖉

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 de-signed to increase disk performance by spreading the I/O load across the channels and drives.

6

<table>
<tr><td>

☼

Adding M2. 2280 SSDs as RAID - Op-erting System Note

When you want to add 2 * M.2 2280 SSD cards configured as RAID 1 or RAID 0, and you want to install an OS on one of them, make sure that you **clean any existing OS off any SATA Disk/ SSD with an installed OS**.

Failure to clean the ex-isting OS off any SSD/ SATA Disk will result in **the system being un-able to find the RAID driver**.

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

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.

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

- *"RAID Setup - UEFI Enabled" on page 6 - 7*
- *"RAID Setup (2 * PCIE SSDs) - UEFI Enabled" on page 6 - 12*
- *"RAID Setup - UEFI Disabled" on page 6 - 18*

No matter which system setup you use make sure you install the **Intel Rapid Stor-age Technology driver** - see *"IRST Driver Installation" on page 6 - 62*).

Run the **Intel® Rapid Storage Technology application** to manage your RAID vol-ume as instructed in *"Intel® Rapid Storage Technology for RAID Systems" on page 6 - 63*.

See also *"Deleting a RAID (Windows 10)" on page 6 - 22* (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).

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 - 5*) you will require **two identical** hard disks or 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.
- A hard disk installed in the Primary HDD bay and a **second** (identical) hard disk installed in the Secondary HDD bay.
  OR
  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 - 21*).
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 - 13*), press <Enter> and select "**Intel RST Premium......**".
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>.

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

9. Select **Create RAID Volume** and press <Enter>.


```
Intel(R) RST ************* RAID Driver

▶ Create RAID Volume
```

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>.


```
Aptio Setup Utility - Copyright (C) 2018 American Megatrends Inc.
  Advanced

  Create RAID Volume                                            Enter a unique volume name
                                                                that has no special characters
  Name:                            Volume1                      and is 16 characters or less.
  RAID Level:                      [RAID0(Stripe)]

  Select Disks:
  SATA 0.4, Crucial_CT128M550SSD4 14    [ ]
  SATA 0.5, Crucial_CT128M550SSD4 14    [ ]

  Strip Size:                      [16kB]
  Capacity (MB):                   0
                                         Name:
▶ Create Volume                         MyRAID

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

        Version ******** Copyright (C) 2018 American Megatrends. Inc.
```

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 - 5* 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>.


```
Aptio Setup Utility - Copyright (C) 2018 American Megatrends Inc.
  Advanced

Create RAID Volume                              X - to Select Disk

Name:                        MyRAID
RAID Level:                  [RAID0(Stripe)]

Select Disks:
SATA 0.4, Crucial_CT128M550SSD4 14    [ ]
SATA 0.5, Crucial_CT128M550SSD4 14    [ ]

Strip Size:                  [64KB]
Capacity (MB)        SATA 0.4, Crucial_CT128M550SSD4 1406039ED50A, 119.2GB

 ▶ Create Volume      X

Select at least two
                                        Enter: Select
                                        +/-: Change Opt.
                                        F1: General Help
                                        F3: Optimized Defaults
                                        F4: Save Changes & Exit
                                        ESC: Exit
```

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

6

17. You should select two identical hard disks/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).
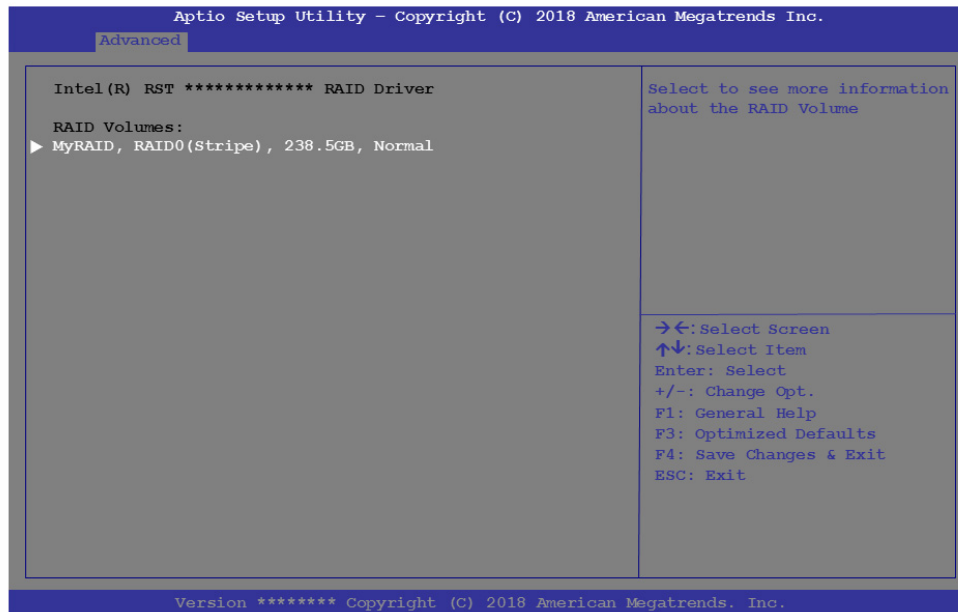
Figure 6 - 4
Created RAID Information (Advanced > Intel(R) Rapid Storage Technology)

```
Aptio Setup Utility - Copyright (C) 2018 American Megatrends Inc.
  Advanced

    Intel(R) RST ************* RAID Driver           Select to see more information
                                                     about the RAID Volume
    RAID Volumes:
  ▶ MyRAID, RAID0(Stripe), 238.5GB, Normal




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


         Version ******** Copyright (C) 2018 American Megatrends. Inc.
```

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 - 63*.

6

6

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 - 5*) 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 - 19*).
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 - 14*), press <Enter> and select "**Intel RST Premium**".
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>.

```
Intel(R) RST ************ RAID Driver

▶ Create RAID Volume
```

Figure 6 - 5
Create RAID Volume (Advanced > Intel(R) Rapid Storage Technology
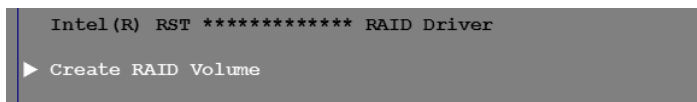
13. You can now setup your RAID volume using any two installed disks.
14. Go to **Name:** and press <Enter>.
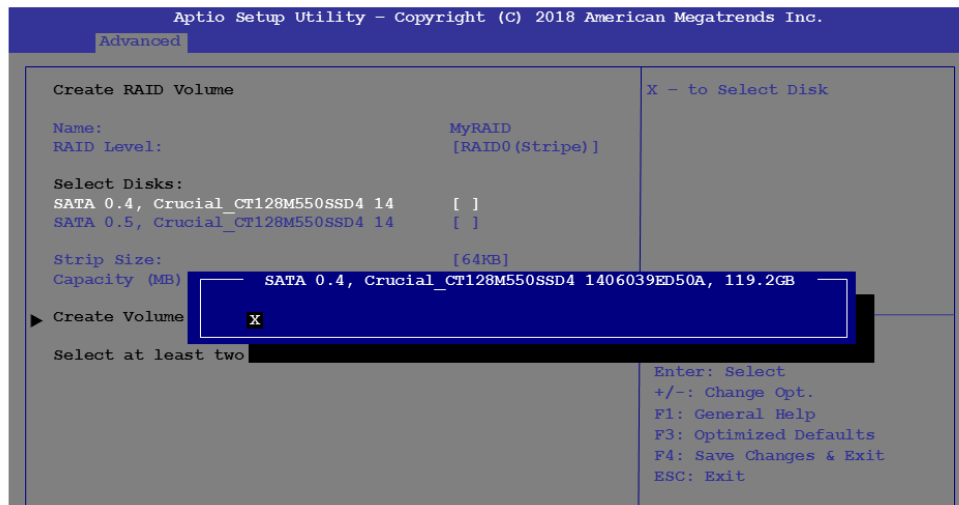15. Type a name of your choice for your RAID volume and press <Enter>.

6

Figure 6 - 6
Name the RAID Volume (Advanced > Intel(R) Rapid Storage Technology)
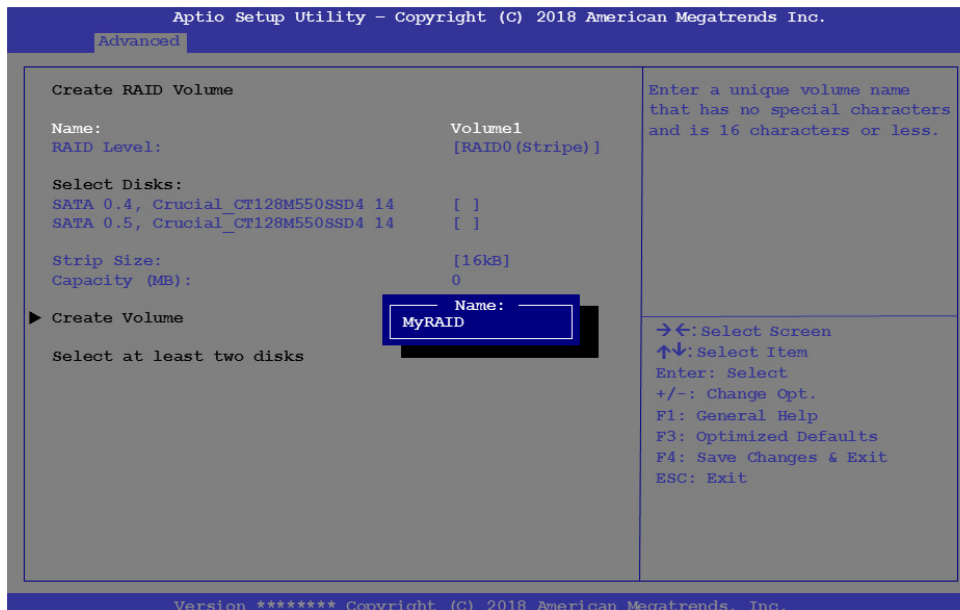
16. Go to **RAID Level**: and press <Enter>.
17. Choose the RAID Level required (see *Table 6 - 1, on page 6 - 5* for details) and press <Enter>.

- **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>.

```
Aptio Setup Utility - Copyright (C) 2018 American Megatrends Inc.
Advanced

Create RAID Volume                                    X - to Select Disk

Name:                          MyRAID
RAID Level:                    [RAID0(Stripe)]

Select Disks:
SATA 0.4, Crucial_CT128M550SSD4 14      [ ]
SATA 0.5, Crucial_CT128M550SSD4 14      [ ]

Strip Size:                    [64KB]
Capacity (MB)      SATA 0.4, Crucial_CT128M550SSD4 1406039ED50A, 119.2GB

Create Volume         X

Select at least two

                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F3: Optimized Defaults
                                                    F4: Save Changes & Exit
                                                    ESC: Exit
```

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

6

20. You should select two identical hard disks/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).
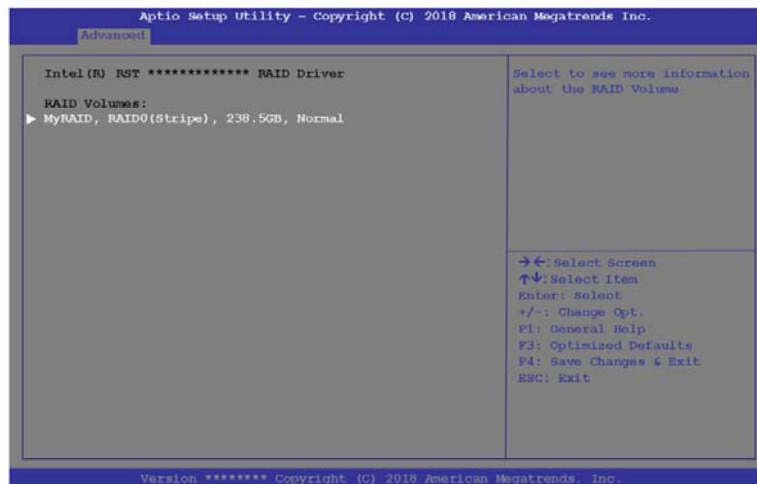
Figure 6 - 8
Created RAID Information (Advanced > Intel(R) Rapid Storage Technology)

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 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 - 63*.

6

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 - 5*) you will require **two identical** hard disks or 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.
- A hard disk installed in the Primary HDD bay and a **second** (identical) hard disk installed in the Secondary HDD bay.
  OR
  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 - 21*).
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 - 13*), press <Enter> and select "**Intel RST Premium........**".
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

6

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 - 63*.

6

Deleting a RAID (Windows 10)

If you wish to delete an existing RAID then follow the procedure below to do so. How-ever **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 al the data on the volumes will be lost) and press <Enter>.

Figure 6 - 11
Delete RAID (Advanced > Intel(R) Rapid Storage Technology)
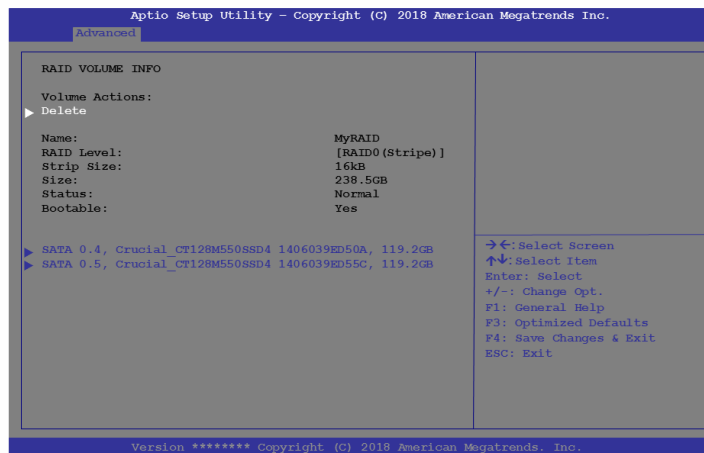
Intel® Optane™ Setup Procedure

After initial setup make sure you install the **Intel Rapid Storage Technology driver** - see *"IRST Driver Installation" on page 6 - 62*).

See also *"Clearing Intel® Optane™" on page 6 - 27* (however **backup up any necessary files and data before deleting an Optane setup**, as doing so will result in the loss of all data on the volumes).

You need to setup **Intel® Optane™** 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.
• An Intel® Optane™ SSD installed in your system.
• 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 - 19*).
3. Set **UEFI Boot** to "**Enabled**".
4. Press <Esc> to exit the menu and go to the **Main** menu.
5. Select **OffBoard NVMe Controller Configuration** and press enter to check that an Intel® Optane™ SSD is present.
6. Press <Esc> to exit the menu and go to the **Advanced** menu.

6

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Creating a Windows Partition for Optane

When installing *Windows*, make sure that you leave a minimum of 5MB of unallocated space for the Intel® Optane™ software to create needed metadata.

After you have created a Windows partition the **Windows Setup** screen will display the partitions and sizes, including the unallocated space. If the unallocated space is less than 5MB, then delete the partitions and recreate them until the criteria is met.

Note this is **5MB** only, not GB.

7. Select **SATA Mode** (see page *5 - 13*), press <Enter> and select "**Intel RST Premium.......**".

SATA Mode Selection (BIOS)
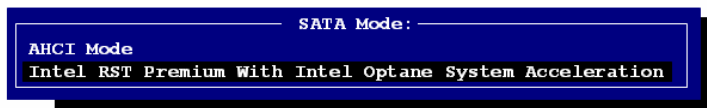
8. Press <F4> and <Yes> to "**Save Changes and Reset**".
9. As the computer restarts press <F2> to enter the **BIOS** again.
10. Go to **Intel(R) Rapid Storage Technology** (**Advanced** menu) and press <Enter>.
11. . *(Note this item only appears after you have restarted and accessed the BIOS again after having set **SATA Mode** to **Intel RST Premium.......**)*

Figure 6 - 13
Intel(R) Rapid Storage Technology (**Advanced Menu**)
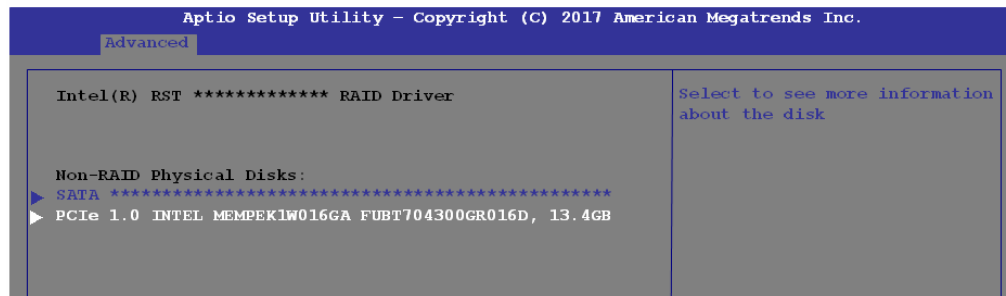
12. If you are reinstalling a system that has previously been setup in **Intel RST Premium mode, make sure you have cleared the Intel Optane Memory (see** *"Clearing Intel® Optane™" on page 6 - 27*).

13. 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).

14. Press <F7> as the computer starts up to bring up the boot device menu.
15. Select the DVD drive containing the *Windows 10* OS DVD and press <Enter>.
16. Press a key at system startup to begin installing *Windows* from your *Microsoft Windows 10* disc.
17. 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).
18. Select **Custom: Install Windows only (advanced)**.
19. It is recommended that you select and then delete existing partitions.
20. Click **New** to create a partition for Windows.
21. It is very important to make sure that when you create the partition, to leave at least a minimum of unallocated space of **5MB** (see sidebar).
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 **Intel® Optane™** system as instructed in *"Intel® Rapid Storage Technology for RAID Systems" on page 6 - 63*.

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>
> **Optane™ System Drives**
>
> Note that any SATA drives or SSDs installed as part of an Optane™ system must not contain an existing Operating System (OS) or Intel Rapid Storage Technology (IRST) information.
>
> Systems with an OS or IRST information on SATA disks or SSDs may result in a failure to load the Intel RTS driver as part of the OS installation, and this will result in a failure to find the Optane™ module for Windows installation.

25. After installing the **Intel® Rapid Storage Technology** application you can access **Device Manager** (right-click the **Start** menu and select **Device Manager**).
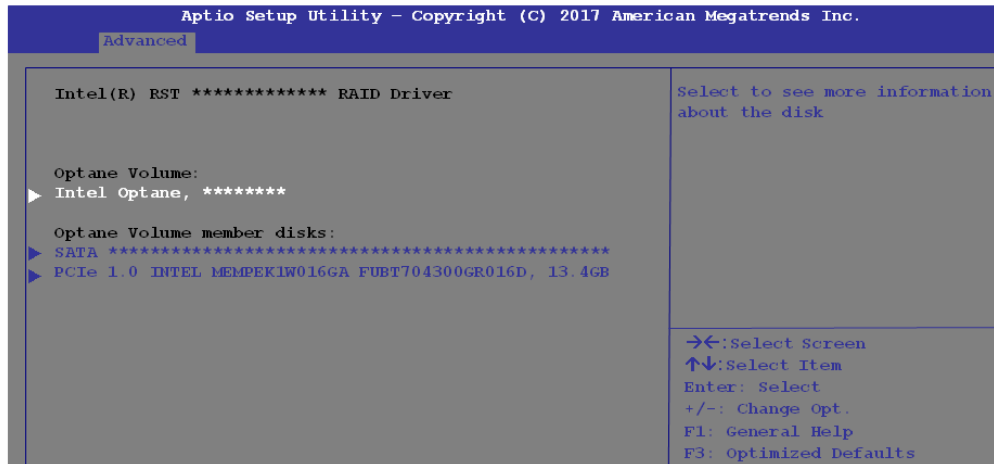26. Click **Disk drives** to check the Optane drive.

Figure 6 - 14
Device Manager (Disk drives)
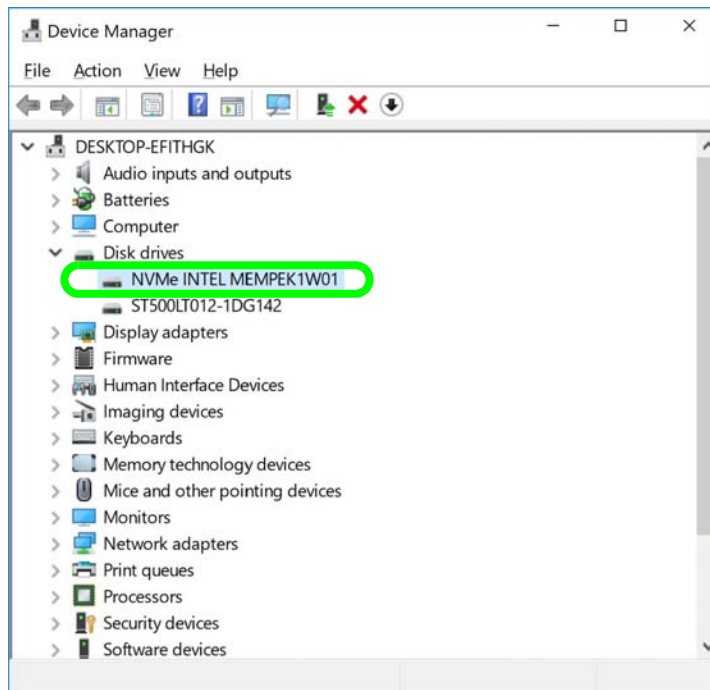
Clearing Intel® Optane™

If you wish to clear an existing **Intel® Optane™** setup then follow the procedure below to do so. However **backup up any necessary files and data before clearing an Intel® Optane™ setup**, as doing so will result in the loss of all data on the volumes.

1. Make sure that **Intel® Optane™** is **Enabled** in the **Intel® Rapid Storage Technology** application.
2. Start-up your computer and press <F2> to enter the **BIOS**.
3. Go to **Intel(R) Rapid Storage Technology** (in the **Advanced** menu) and press <Enter>.
4. Select **Intel Optane, ****** (listed under **Optane Volume:**) and press <Enter>.


```
Aptio Setup Utility - Copyright (C) 2017 American Megatrends Inc.
  Advanced

  Intel(R) RST ************* RAID Driver                Select to see more information
                                                        about the disk


  Optane Volume:
► Intel Optane, ********

  Optane Volume member disks:
► SATA **********************************************
► PCIe 1.0 INTEL MEMPEK1W016GA FUBT704300GR016D, 13.4GB




                                                        →←:Select Screen
                                                        ↑↓:Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F3: Optimized Defaults
```

Optane SSD Module Removal

If you need to remove an installed Optane SSD module for any reason, **you must disable** (see *"Disabling Intel® Optane™" on page 6 - 73*) **Intel Optane before doing so**.

Failure to disable Optane before removing an Optane SSD module will result in the system being unable to start up.

Go to the BIOS to clear the Intel Optane data.

Figure 6 - 15
Intel(R) Rapid Storage Technology (Advanced Menu)

6

5. Select "**Deconcatentate**" and press <Enter>.
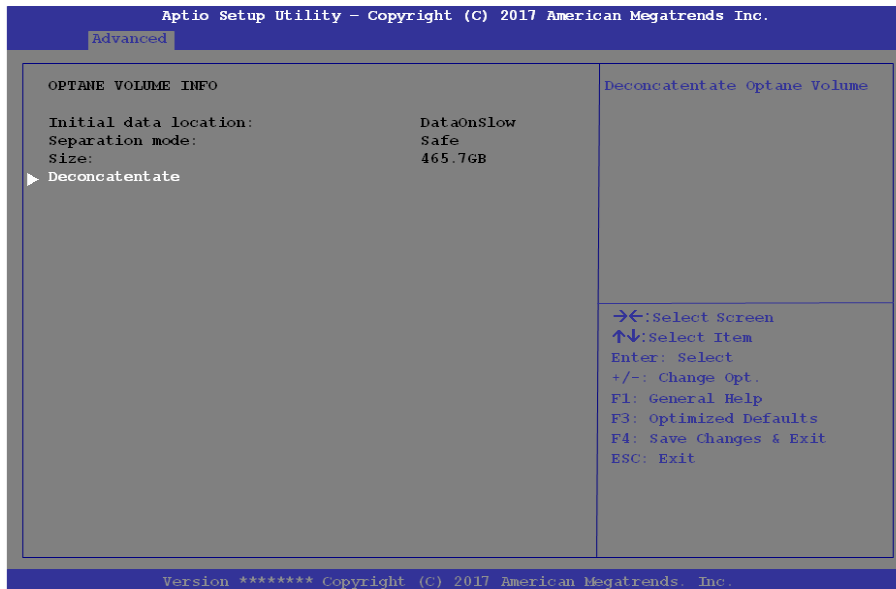
Figure 6 - 16
Intel(R) Rapid Storage Technology (**Deconcatentate**)

6. Select **Yes** from the "**Are you sure you want to perform deconcatentation**" option.

7. Select "**Start deconcatentation**" and press <Enter>.

```
Aptio Setup Utility — Copyright (C) 2017 American Megatrends Inc.
  Advanced

  OPTANE VOLUME SEPARATION                        Select whether you want to
                                                  perform deconcatenation
  Preserve user data on             [Enabled]
  Deconcatenation::
  Are you sure you want to perform  [No]
  deconcatenation?

▶ Start deconcatenation
  Warning: deconcatenation may take
  from a couple of minutes to a
  couple of hours. Please don't
  restart your computer until the
  operation is complete.
                                                  →←:Select Screen
                                                  ↑↓:Select Item
                                                  Enter: Select
                                                  +/-: Change Opt.
                                                  F1: General Help
                                                  F3: Optimized Defaults
                                                  F4: Save Changes & Exit
                                                  ESC: Exit

        Version ******** Copyright (C) 2017 American Megatrends. Inc.
```

Figure 6 - 17
Intel(R) Rapid Storage Technology (Start Deconcatentation)

6

8. The system will return to the standard **Intel(R) Rapid Storage Technology** menu when complete (see *Figure 6 - 13 on page 6 - 24*).
9. You should then select the appropriate SATA Mode for your system and reinstall the OS.

Wireless LAN Module

⚠

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 - 5, on page 1 - 20*).

If you have included an **Intel®, Killer (Combo) module** or **AD Wireless LAN/**Bluetooth combo module make sure it 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*. You will need to install both the WLAN and Bluetooth drivers for all the combo modules. **The Wireless LAN drivers are installed as follows**:

- *For the Intel module* see *"Intel® WLAN Driver Installation" on page 6 - 31*.

- *For the AD combo module see "WLAN AD Combo Driver Installation" on page 6 - 31 (AD combo module also requires a WIGIg driver installation - see "WLAN AC/AD WiGig Driver Installation" on page 6 - 51).*

- *For both the Killer modules see "Killer WLAN Combo Driver Installation" on page 6 - 32.*

6

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 an attached 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 - 33*).

WLAN AD 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 the DVD drive.
2. Click **Option Drivers** (button).
3. Click **1.Install WLAN Driver > Yes**.
4. Click **Next > Next > Next > Install** (*the driver will take some time to install*).
5. Click **Finish** to restart the computer.
6. The operating system is the default setting for Wireless LAN control in *Windows* (see page *6 - 33*).

Killer WLAN 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 the DVD drive.
2. Click **Option Drivers** (button).
3. Click **1.Install WLAN Driver > Yes**.
4. Select the language preferred and click **Next**.
5. Click **Next > Next**.
6. Click in the check box to accept to the **License Agreement** and click **Next**.
7. Click **Finish**.
8. Click **Yes** to restart the computer.
9. The operating system is the default setting for Wireless LAN control in *Windows* (see page *6 - 33*).
10. **You can then download the Killer Control Center App from the Microsoft Store** but you will need to have a working internet connection.
11. After the driver is installed an automatic browser window will pop-up and you can click the "**Get**" button to start the installation.
12. Alternatively click the **Start** menu in Windows to access the **Microsoft Store App** tile under **Explore**.
13. You can then search by typing "**Killer Control Center**" in the search window (click the magnifying glass icon in the top right corner of the screen) and click to install the App.
14. When just installed the **Killer Control Center** will appear in the **Windows Start** menu.

6

WLAN Configuration in Windows 10

You can configure a wireless connection using one of the following options, how-
ever 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**).
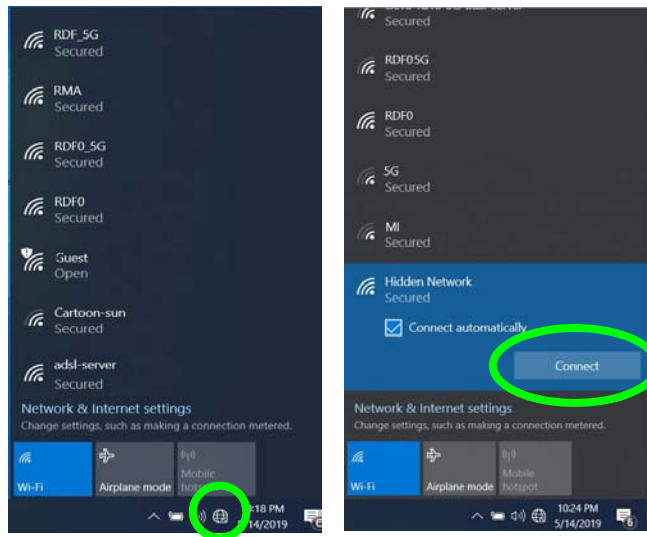
Figure 6 - 18
WiFi & Network Connections

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.

6

Figure 6 - 19
Network Connected (Click Disconnect)

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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.
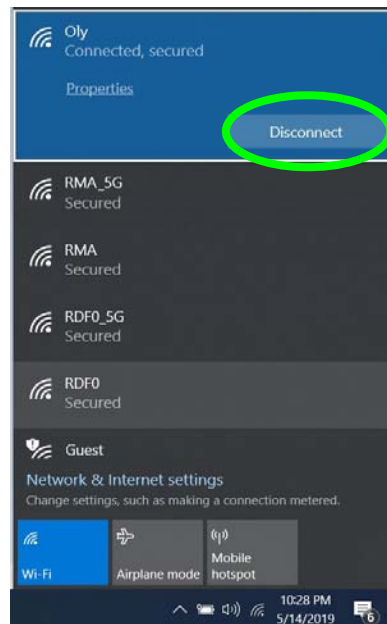
9. You can click the **Airplane Mode** button to turn the mode On or Off.
10. You need to either use **Airplane Mode**, or to **turn the WLAN module off** aboard aircraft.
11. If you click on **Network Settings** to bring up **Network & Internet** for a more comprehensive list of network and internet 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**.

6
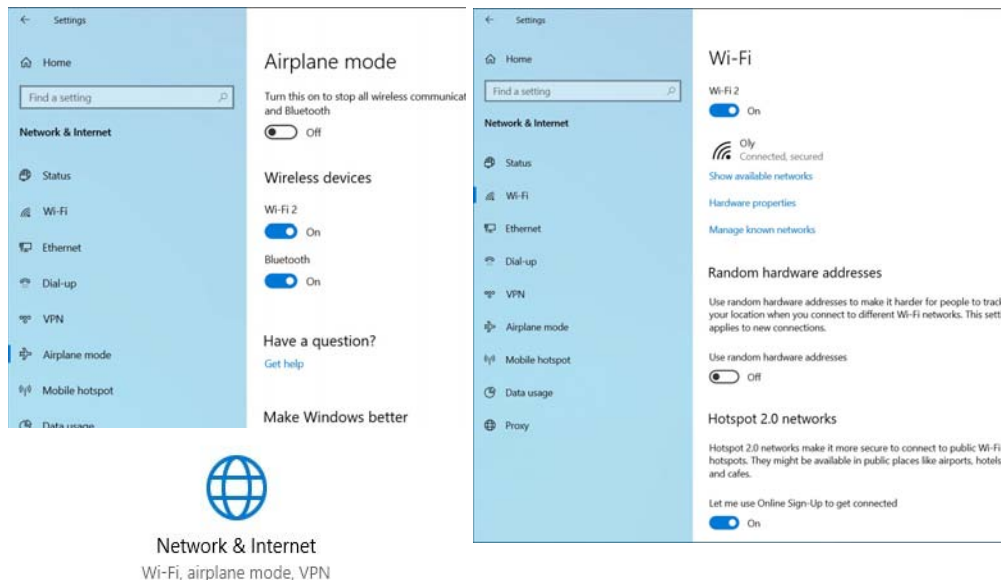
Figure 6 - 20
Network & Internet Settings

Killer Control Center

The **Killer Control Center** app is installed with the LAN driver (see *"LAN" on page 4 - 8*) for your network adapter. The **Killer Control Center** app can be accessed from the desktop 🎛 or Apps menu. The app helps you to manage your network performance, optimize connection speed, and to control which applications are using your wireless bandwidth.
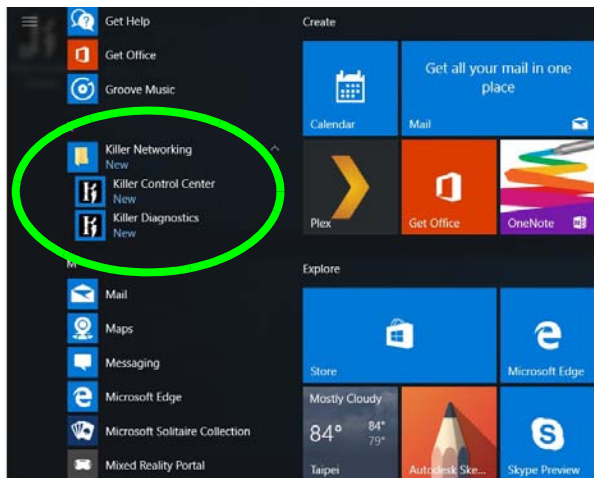
Figure 6 - 21
Killer Networking

Network Settings

The **Settings** page provides options to customize your network settings.

Figure 6 - 22
Killer Control Center Settings

Click on **Set Speed Limits** to change the upload/download speed for a connection (click on **Test Bandwidth** to run a speed test).
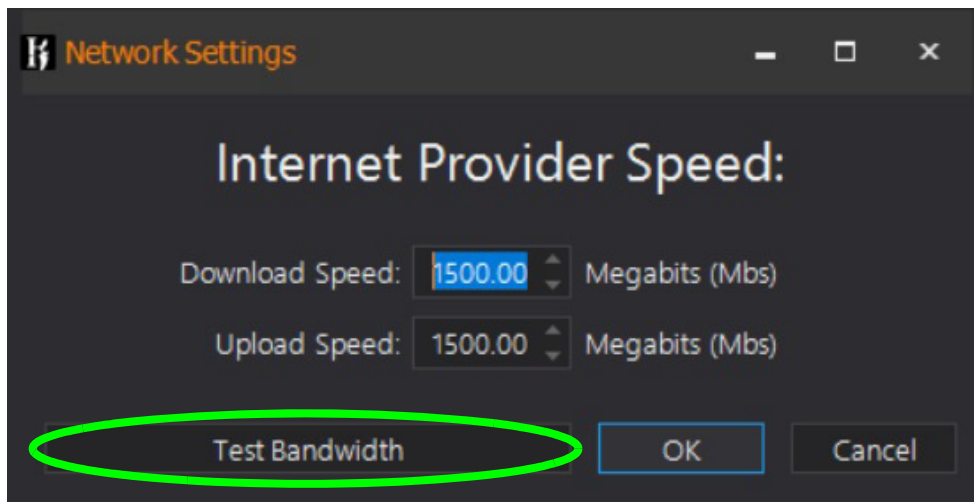
Figure 6 - 23
**Killer Control Center
Set Speed Limits**

- **Connection Details** displays information about the connection such as the IP address etc.
- When **Advanced Stream Detect** is enabled, network traffic is managed to prioritize online games, video, audio etc for better quality and speed with less interruptions.
- **Access Point List** keeps track of previous Access Points to which the system has connected and stores the settings.

Overview

The **Overview** page displays total internet traffic received by the system in real time. Below the speedometer is a list of applications and domains with network connections. The **Priority Setting** can be set for each application or domain with Priority 1 the highest, and 6 the lowest.

Figure 6 - 24
Killer Control Center Overview

Apps

The **Applications** page provides a detailed list of networked applications with the Download/Upload speeds for each application.
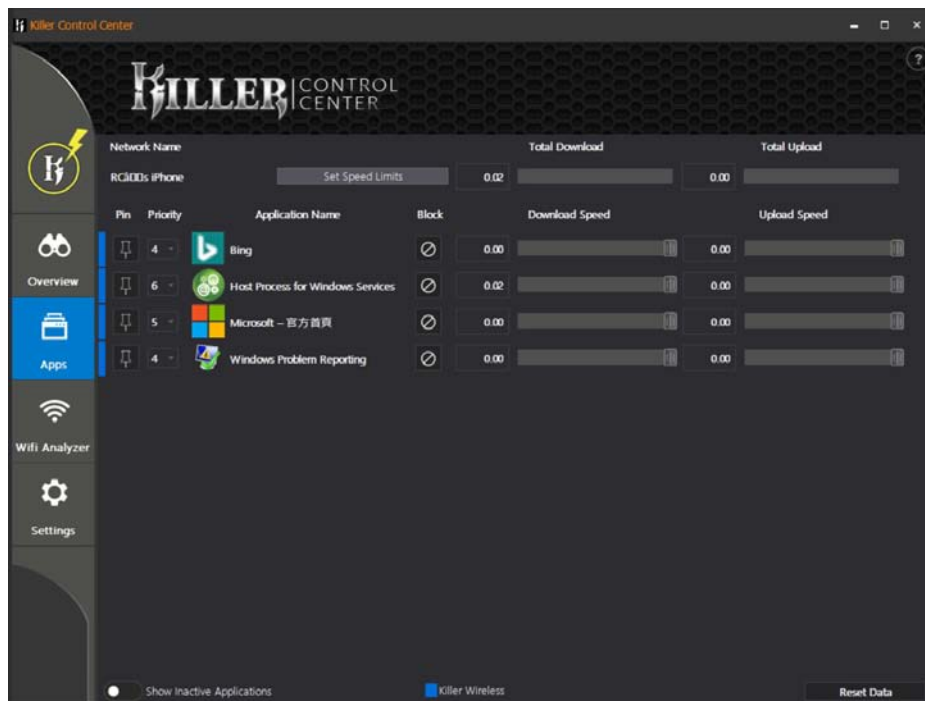
Figure 6 - 25
Killer Control Center Apps

Wifi Analyzer

The **Wifi Analyzer** page provides a snapshot of the overall wireless environment.The analyzer displays nearby networks and their signal strength, and selecting a network will display information on it such as channel, data rates, channel width etc.

Figure 6 - 26
**Killer Control Center
Wifi Analyzer**

Fingerprint Reader Module

> **⚠**
>
> **Fingerprint Reader and Power Saving States**
>
> If your computer is in a power saving state (e.g. Hibernate or Sleep) you should keep your finger clear of the fingerprint sensor.
>
> Allow the system to fully resume before swiping your finger across the sensor.

The fingerprint reader module provides a high level of security for your computer. Make sure you have administrator's rights to your computer, and have a *Windows* password enabled for full security protection.

There are two different fingerprint modules supplied with this model. Install the driver from the *Device Drivers & Utilities + User's Manual* disc by following the appropriate instructions on the page overleaf.

The fingerprint reader module uses the **Sign-in options** configuration of the **Windows Account**.

Fingerprint Reader Driver Installation

1. Insert the *Device Drivers & Utilities + User's Manual* disc into an attached CD/DVD drive.
2. Click **Option Drivers**.
3. Click **2.Install Fingerprint Driver > Yes**.
4. Click **OK** to complete the installation.
5. The fingerprint reader module uses the **Sign-in options** configuration of the **Windows Account** (see overleaf).

Fingerprint Module Configuration

1. Click the **Settings** item in the Start Menu and then click **Accounts** and click **Sign-in options**.
2. You will need to add a *Windows* password (click **Add** under **Password**).
3. After you have added the password you will need to also add a **PIN**.
4. Click **Set up** under **Windows Hello Fingerprint**.
5. The wizard will then guide you through the set up process to scan your fingerprints.
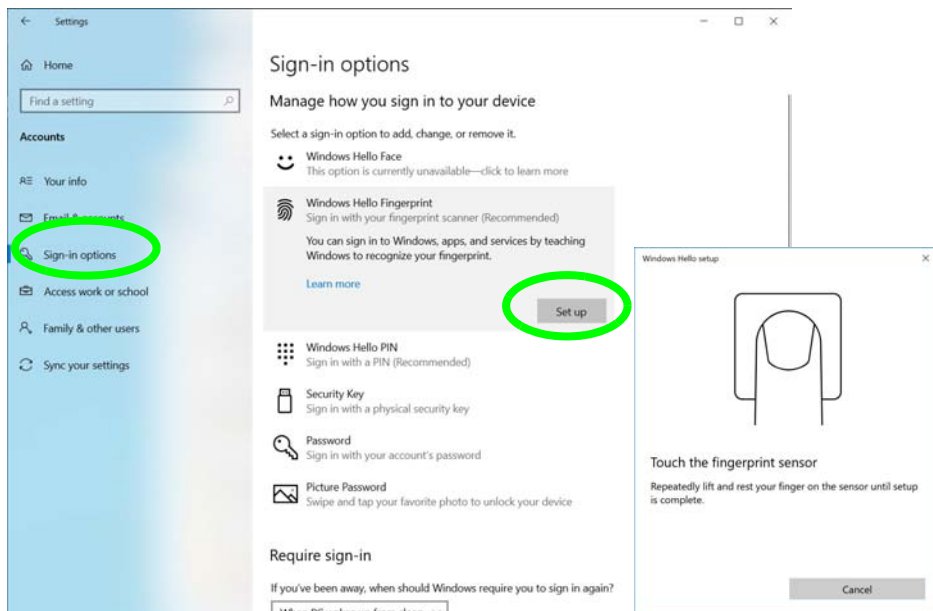
PIN Code

You will be asked to add a PIN code when setting up the Fingerprint Reader. This is in addition to your windows password.

Note this code as it may be required to help you sign-in if there are any issues with using the fingerprint reader to sign-in (see *"Fingerprint Sign-In Issues" on page 6 - 44*).

Figure 6 - 27
**Accounts - Sign-in options
(Add Fingerprint)**

6. You will be instructed to **Touch the fingerprint sensor** (simply touch the sensor) on the reader a number of times (**lift and touch again**).

Figure 6 - 28
Rest & Lift Your Finger

7. Try to present different parts of your finger in different positions (similar to the various positions you may use when using it, and if you see red at any point try a different position).
8. Click **Set up PIN** if you need to add a PIN.
9. You can choose to **Add another** finger (this is recommended) or **Remove** the current fingerprint reading.
10. You can now scan your fingerprint to log-on to the computer.

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Fingerprint Sign-In Issues

If at the Windows Hello screen, **the Fingerprint reader fails to recognize the fingerprint 3 times it will then block access to the computer**.

In this case you will need to use your PIN (the PIN you used when initially setting up the fingerprint reader) **to access the computer**. Alternatively you can sign-in using your windows password.

After using the PIN code (or windows Password) to access the computer you can go to the **Settings > Accounts > Sign-in options** if you wish to change any settings.

Bluetooth & WLAN Combo Module

If you have included an **Intel®, Killer (Combo) module** or **AC/AD** Wireless LAN/ **Bluetooth** combo module make sure it 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*. You will need to install both the WLAN and Bluetooth drivers for all the combo modules. **The Bluetooth drivers are installed as follows**:

- *For the* *Intel* *module* **see** *"Intel/Killer 1550/Wi-Fi 6 AX-1650x Bluetooth Combo Driver Installation" on page 6 - 46*.

- *For the* *AD* *combo module see "Killer 1535/AD Bluetooth Combo Driver Installation" on page 6 - 46*.

- *For the* *Killer 1535* *module see "Killer 1535/AD Bluetooth Combo Driver Installation" on page 6 - 46*.

- *For the* *Killer 1550/Wi-Fi 6 AX-1650x* *modules see "Intel/Killer 1550/Wi-Fi 6 AX-1650x Bluetooth Combo Driver Installation" on page 6 - 46 (note that this is the same as the Intel Bluetooth driver)*.

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 - 5, on page 1 - 20*).

6

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).

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.

6

Intel/Killer 1550/Wi-Fi 6 AX-1650x 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 **3.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 - 47* for configuration instructions.

Killer 1535/AD 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 the DVD drive.
2. Click **Option Drivers** (button).
3. Click **3.Install Combo BT Driver > Yes**.
4. Click **Next > Next**.
5. Click **Install**.
6. Click **Finish**.
7. Click **Yes** to restart the computer.
8. See *"Bluetooth Configuration in Windows" on page 6 - 47* for configuration instructions.

Bluetooth Configuration in Windows

1. Go to the **Settings** control panel and click **Devices** (or click the Bluetooth icon ⊗ in the taskbar and click **Add a Bluetooth Device**).
2. Click **Bluetooth & other devices** and make sure Bluetooth is **On.**
3. Click **Add Bluetooth or other device > Bluetooth (Add a device)** and a list of discovered devices will appear.
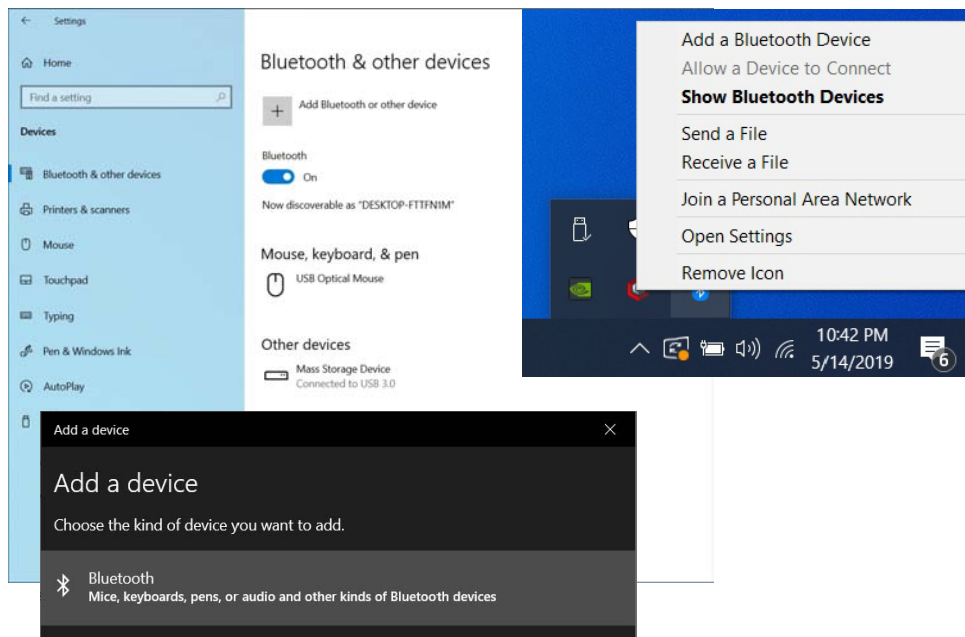
Figure 6 - 29
**Settings > Bluetooth
& Other Devices
(Add a Bluetooth
Device)**

6

Figure 6 - 30
Add a Device

4. Double-click the device you want to pair with the computer and click **Connect, if the PIN matches that on the device to which you wish to connect (you may need to click paid on the device)**.
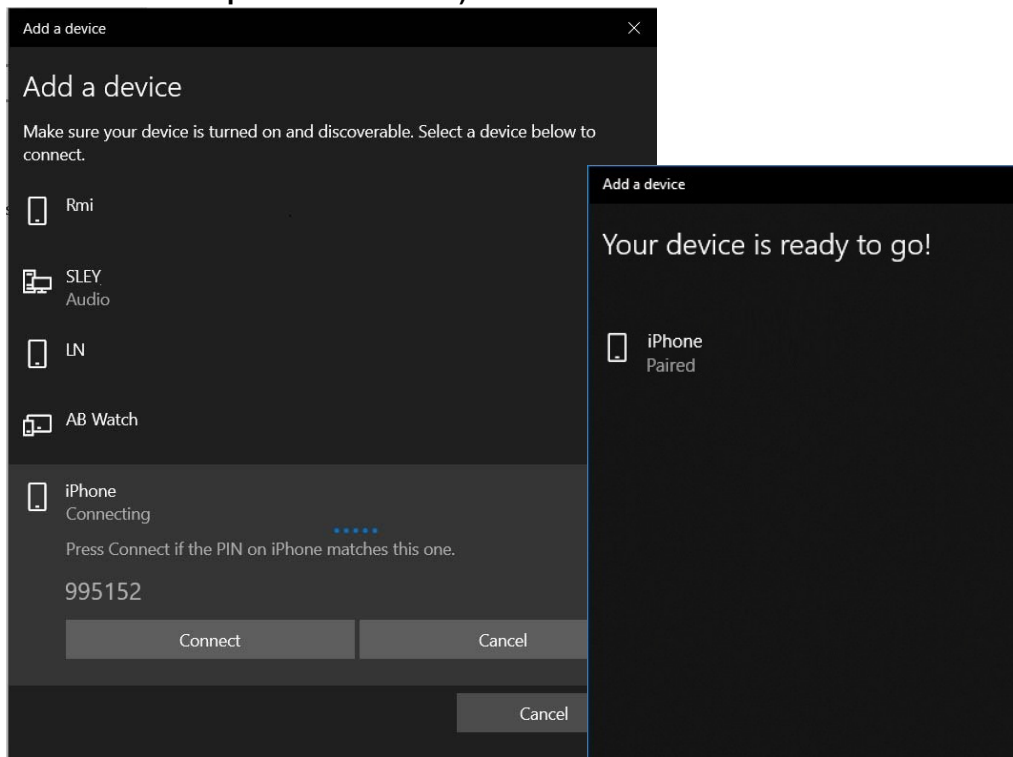
Figure 6 - 31
Bluetooth Connect

5. Select a device and click **Remove Device** Remove device to disconnect from any device (click **Yes** to confirm).
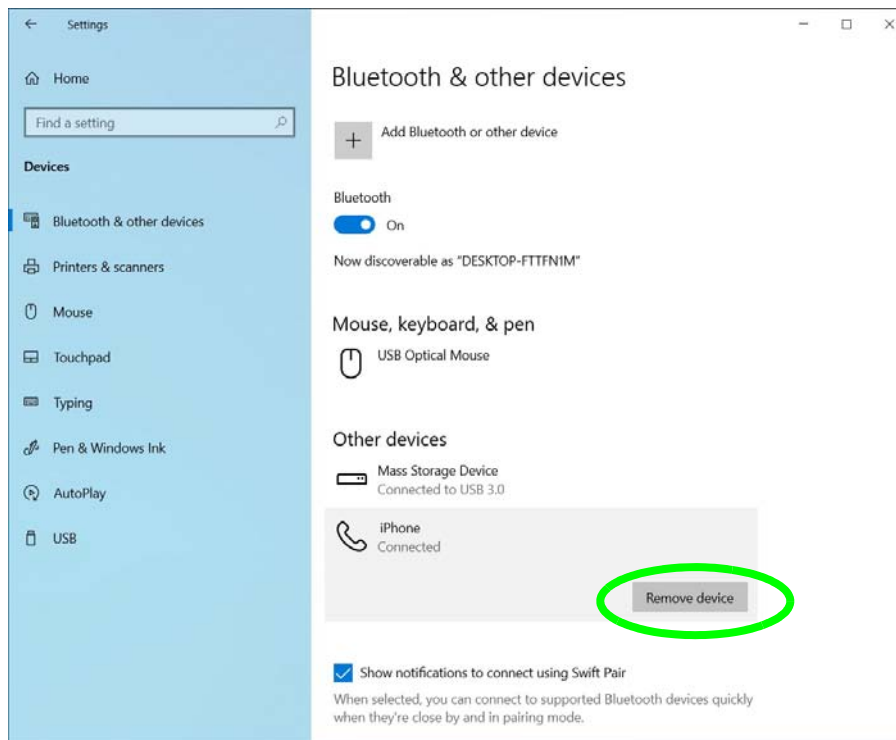
Figure 6 - 32
Bluetooth Remove Device

To Make your Computer Discoverable to Bluetooth Devices

1. Go to the **Settings** control panel and click **Devices** (or click the Bluetooth icon ✳ in the taskbar and click **Open Settings**).
2. Click **Bluetooth & other devices** and click **More Bluetooth options.**
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.
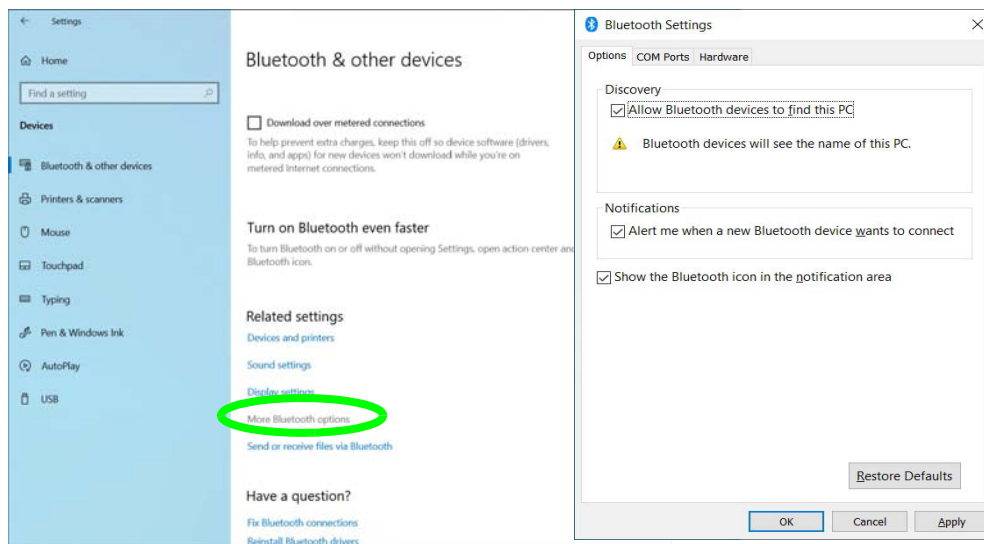
Figure 6 - 33
Bluetooth Settings

WLAN AC/AD WiGig Driver Installation

Install the WiGig Driver to support the high speed 802.11ad standard for your AC/AD WLAN (the Intel and Qualcomm modules do not require this driver).

1. Insert the *Device Drivers & Utilities + User's Manual* disc into an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **4.Install WiGig Driver > Yes**.
4. Click **Next > Next > Install**.
5. Click **Finish** to restart the computer.

6

Sound Blaster Audio

Install the **Sound Blaster AP** to allow you to configure the audio settings to your requirements for the best performance in games, music and movies.

Sound Blaster X® Pro-Gaming 360˚ Connect Audio AP Installation

1. Insert the *Device Drivers & Utilities + User's Manual* disc to an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **5.Install Creative Driver > Yes**.
4. Select the installation language and click **OK**, then click **OK** and the system will automatically restart to complete the driver installation process.
5. The **Sound Blaster Connect** App will download but you will need to have a working internet connection.
6. Click the Windows **Start** menu to access the **Microsoft Store App** tile under **Explore**.
7. Click the **Sign in** icon and select **Downloads and updates**.
8. Click **Check for Updates** and a list of apps being downloaded will pop-up.
9. To prioritize the Sound Blaster Connect driver you can click **Pause all** to pause the download queue.
10. Click on **Sound Blaster Connect** and click on the resume icon to download the driver.
11. When installed **Sound Blaster Connect** will appear in the **Start** menu.

6

Sound Blaster Connect

The Sound Blaster Connect **BLASTER X EXPERIEINCE** home **Dashboard** contains a number of preset audio configurations for your use (or adjust the setting to configure the settings to your own preference).

Figure 6 - 34
Sound Blaster Connect (Dashboard)
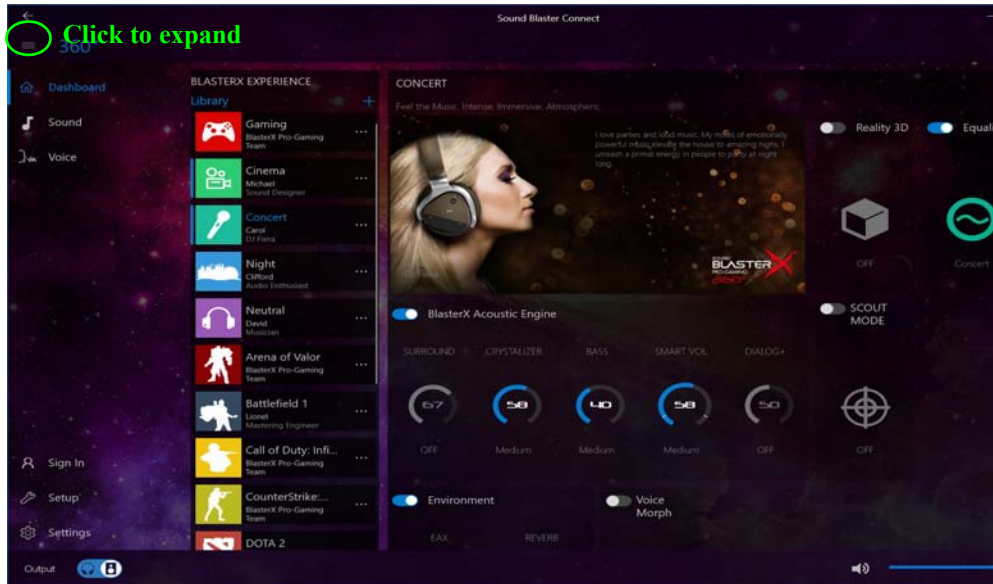
> 🔔
> **Setup for External Speakers/Headphones**
>
> If you find the sound is not balanced when connecting to external speakers/headphones then select a pre-existing setting under Blaster Experience e.g Neutral, and test if the balance achieved is better.
>
> It is recommended that you experiment with different settings in order to achieve the best result, and you can adjust any of the settings and these will be assigned to Personal.

6

Sound Blaster Connect - Sound

The **Sound** page allows you to adjust the **Personal** settings for **Reality 3D**, **Equalizer**, **Acoustic Engine**, **Scout Mode** and **Environment**.

Sound Blaster Cinema 3 Reality 3D allows you to enable 5.1/71 surround sound for headphones or speakers for Music, Movie or Games (click the button to turn it on).

6

Figure 6 - 35
**Sound Blaster
Connect (Reality 3D)**
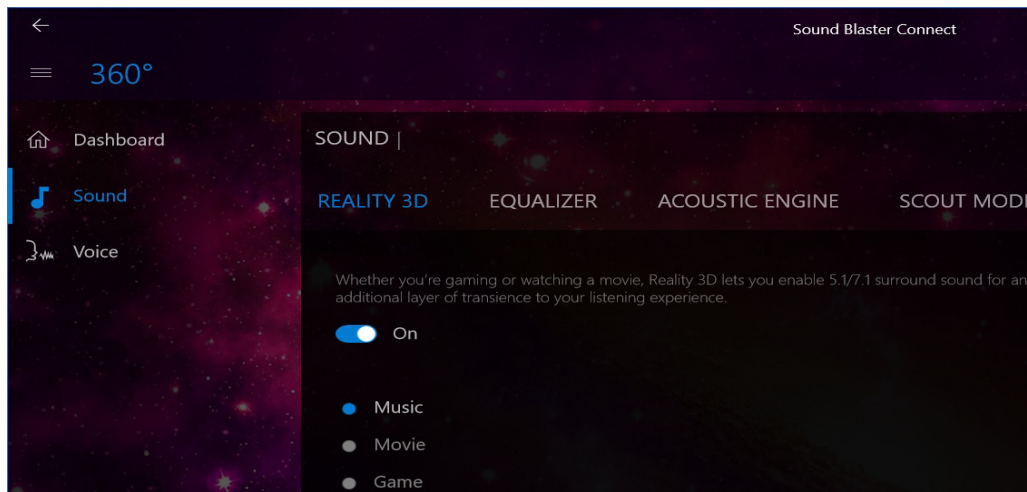
The **Equalizer** allows you to manually adjust the custom settings.
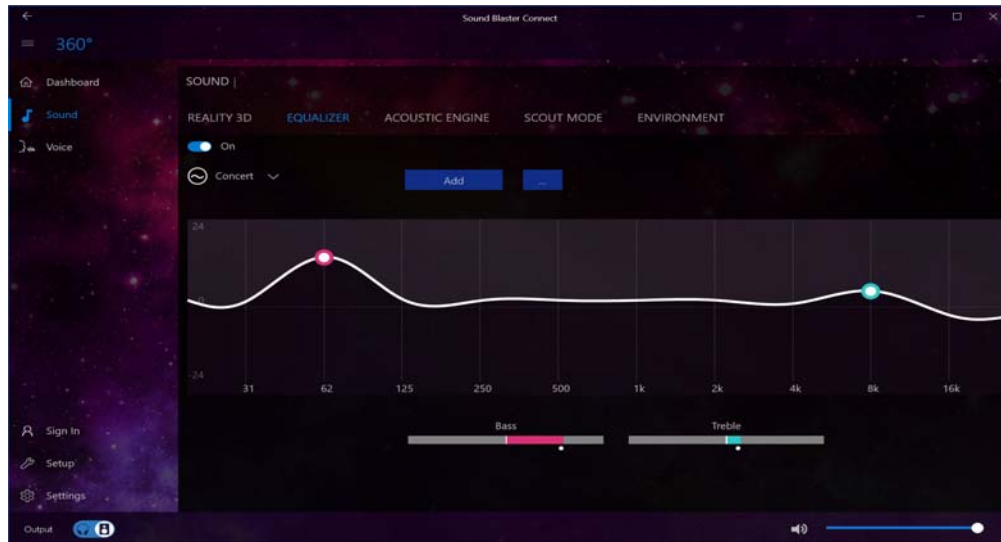
Figure 6 - 36
**Sound Blaster
Connect (Equalizer)**

The **Acoustic Engine** offers a suite of playback technologies to enhance sound. Each playback technology has an **On/Off button** to allow you to enable/disable it, and most controls feature a dial to adjust the levels.
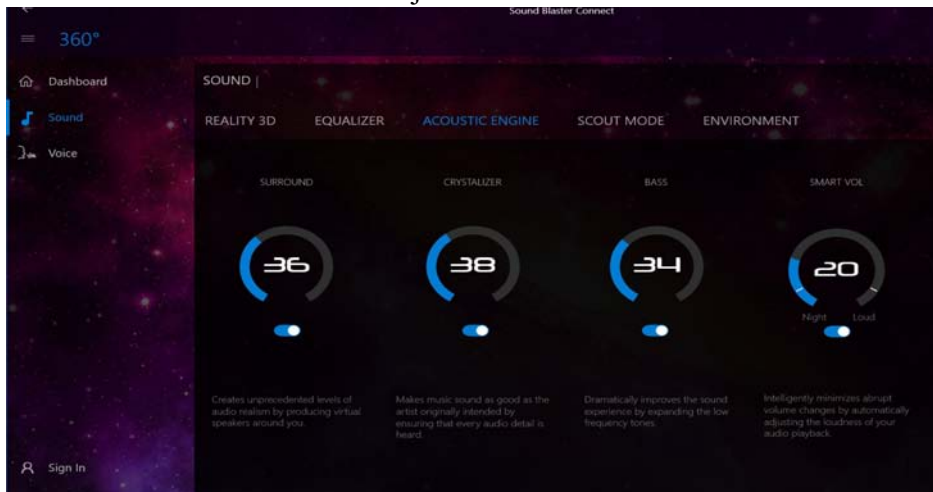
Figure 6 - 37
Sound Blaster Connect (Acoustic Engine)

- **Surround**: Provides virtual sound channels to control the level of immersion.
- **Crystalizer**: Enriches audio to make it sound livelier.
- **Bass**: Enhances the bass level of the sound system.
- **Smart Volume**: Minimizes sudden volume changes to avoid the need for constant adjustment.
- **Dialog Plus**: Optimizes dialogue levels for movies etc.

Sound Blaster Connect - Scout Mode

Click on the power button to enable **Scout Mode** to enhance your ability to hear enemies in games from a further distance away than would normally be possible.
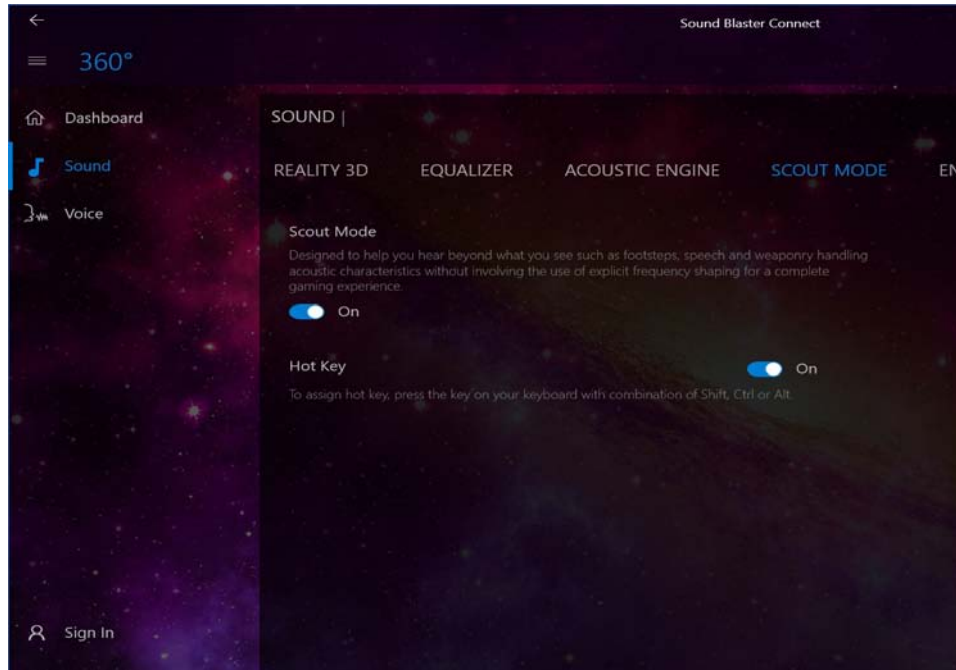
Figure 6 - 38
Sound Blaster Connect (Scout Mode)

Sound Blaster Connect - Environment

These profiles add a sense of realism to the gaming experience.

Figure 6 - 39
Sound Blaster Connect (Environment)
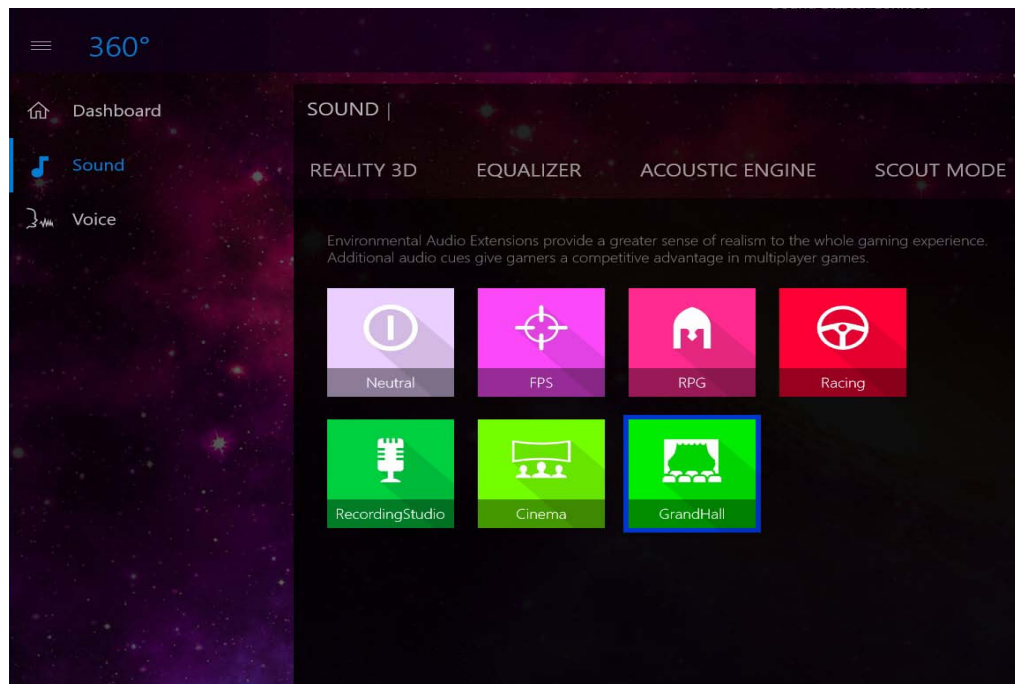
Sound Blaster Connect - Voice Morph

These profiles allow you to alter your voice in gaming or online chats.
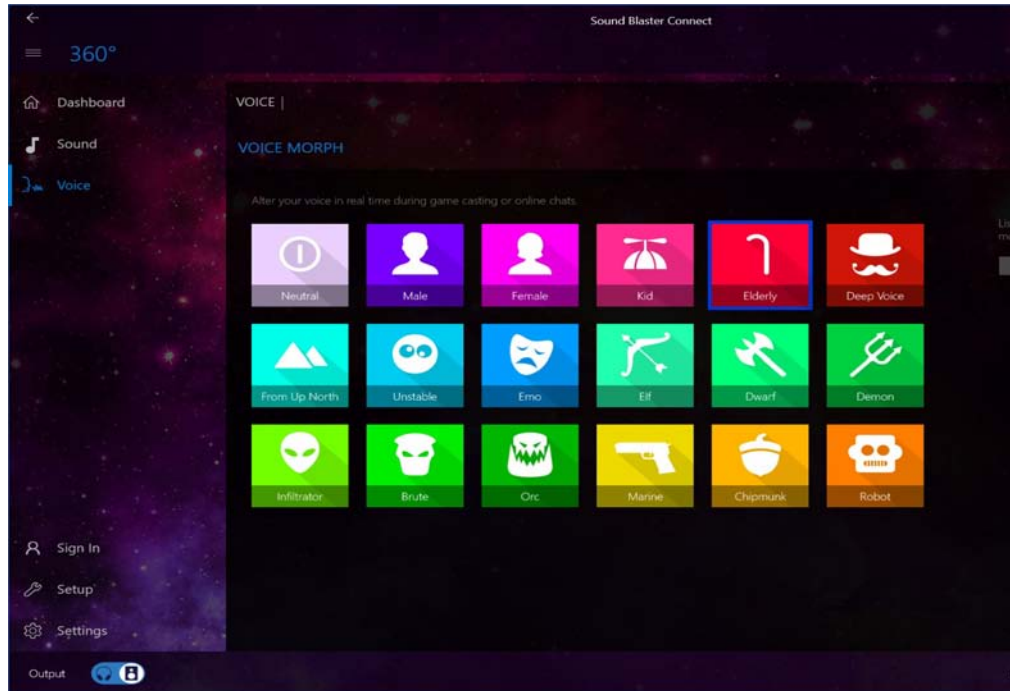
Figure 6 - 40
Sound Blaster Connect (Voice Morph)

Sound Blaster Connect - Setup

Setup at the bottom left of the screen contains 2 headings (**Speaker** and **Calibration**) which allow you to select the appropriate type of speakers or headphones for your system, and to adjust their calibration.

Figure 6 - 41
Sound Blaster Connect (Setup)
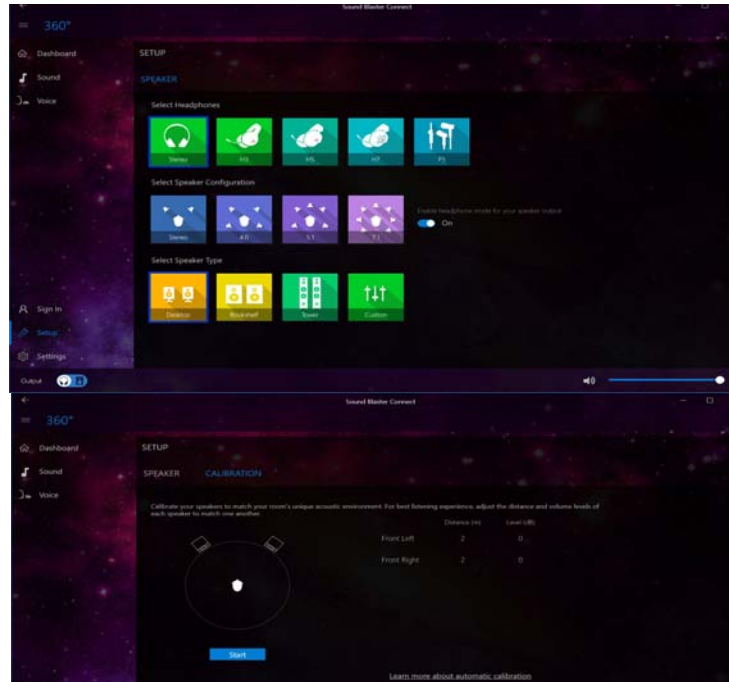
Sound Blaster Connect - Settings

General Settings at the bottom left of the screen allows you to set the language and distance preferences and to check for the latest application updates. Click **Reset** to return to the factory default settlings.
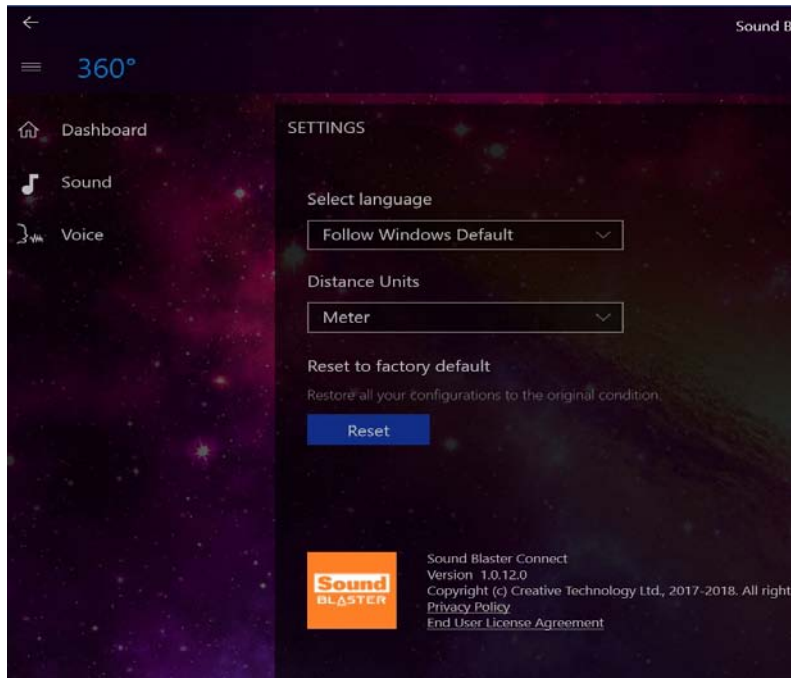
Figure 6 - 42
**Sound Blaster
Connect
(Settings > General)**

6

6

Intel® Rapid Storage Technology

The **Intel Rapid Storage Technology application** provides high-performance AHCI and **RAID/Intel® Optane™** system capabilities. Install the **Intel Rapid Storage Technology application** (after installing all necessary drivers in the correct order) to support your **RAID/Intel® Optane™** system or SATA drive if set up in **AHCI mode** in the BIOS (see *"SATA Mode (Advanced Menu)" on page 5 - 14*).

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 **6.Install IRST Driver > Yes**.
4. Click **Next** and click the check box to accept the license and click **Next**.
5. Click **Next > Next > Next**.
6. Click **Finish** to restart the computer.
7. 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** (see page *6 - 63*) or **Intel® Optane™** (see page *6 - 69*) configuration. After setting the SATA mode to **Intel® Optane™ and installing the Intel® Rapid Storage Technology** application, DO NOT uninstall the **Intel® Rapid Storage Technology** application.

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.
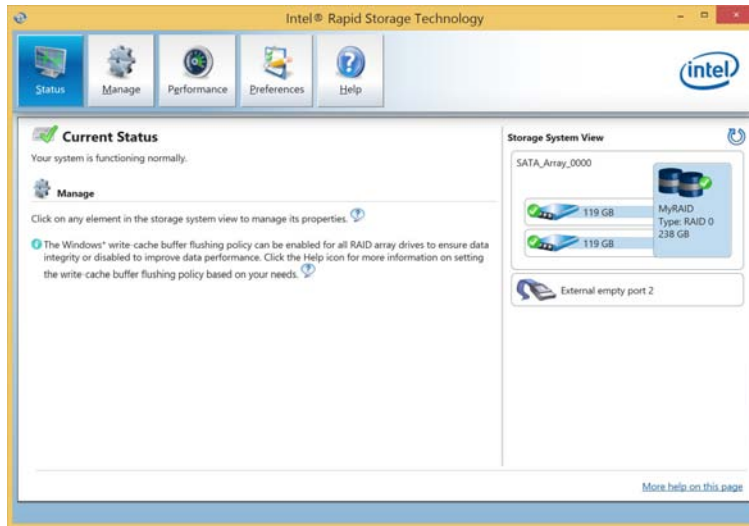
IRST and M.2 PCI-e SSDs

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).

Figure 6 - 43
Intel® Rapid Storage Technology Status

Intel Optane H10

⚠️

Intel Optane Hybrid H10 System Installation

If you need to reinstall the Windows operating system, make sure that you **install it on the larger volume member disk.**
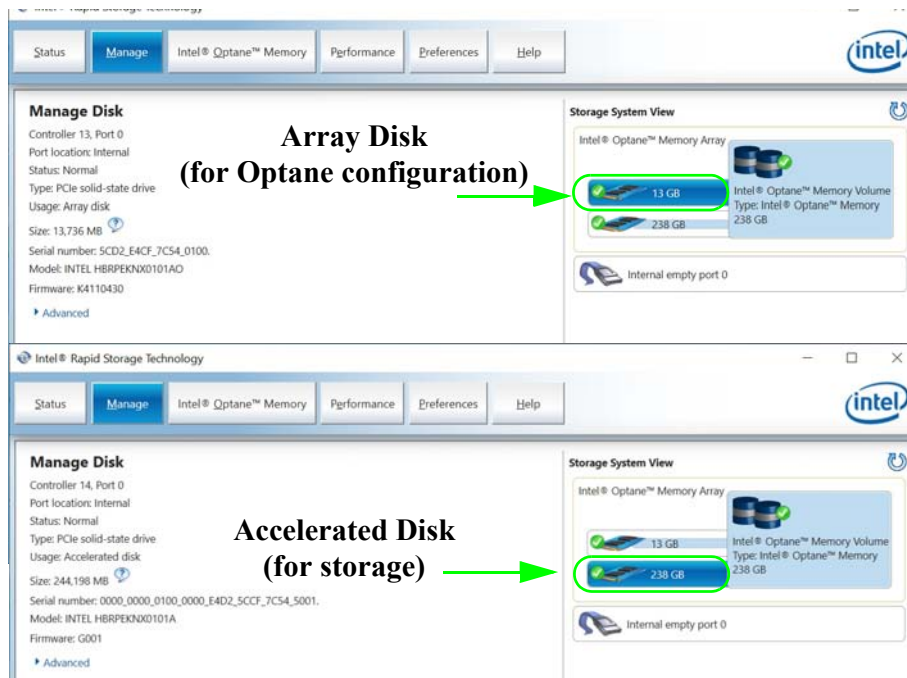
Figure 6 - 44
IRST - Intel® Optane™ H10 Memory (2 Volume Disk))

Note that the figure above displays an Optane H10 configuration as there are 2 Volume Disks. In this case the Operating System etc is installed on the accelerated disk, and the Optane system configuration is installed on the array disk.

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.

Figure 6 - 45
**Intel® Rapid
Storage
Technology
Help**

🖉
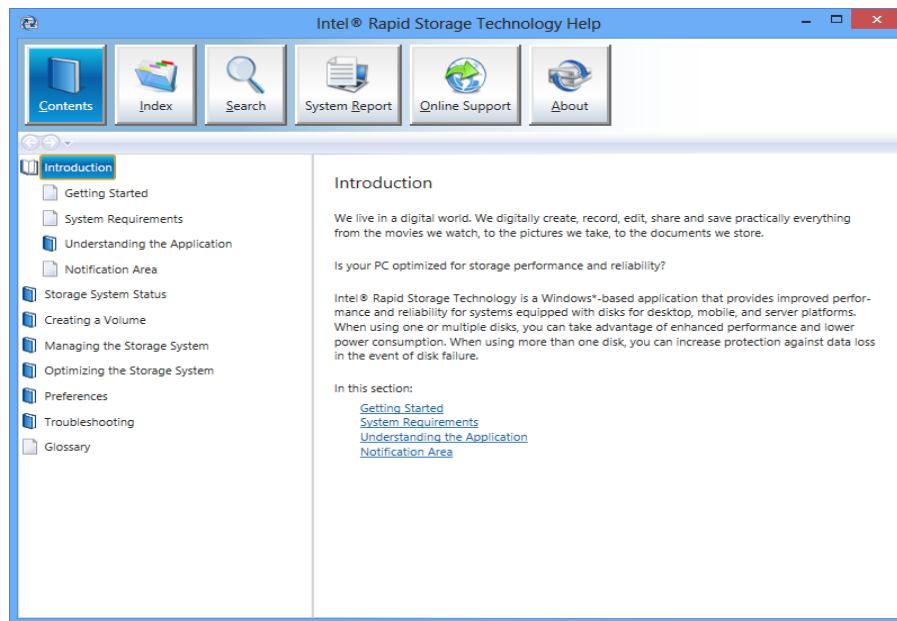
Help

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.

6

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

6

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 - 65*.

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).
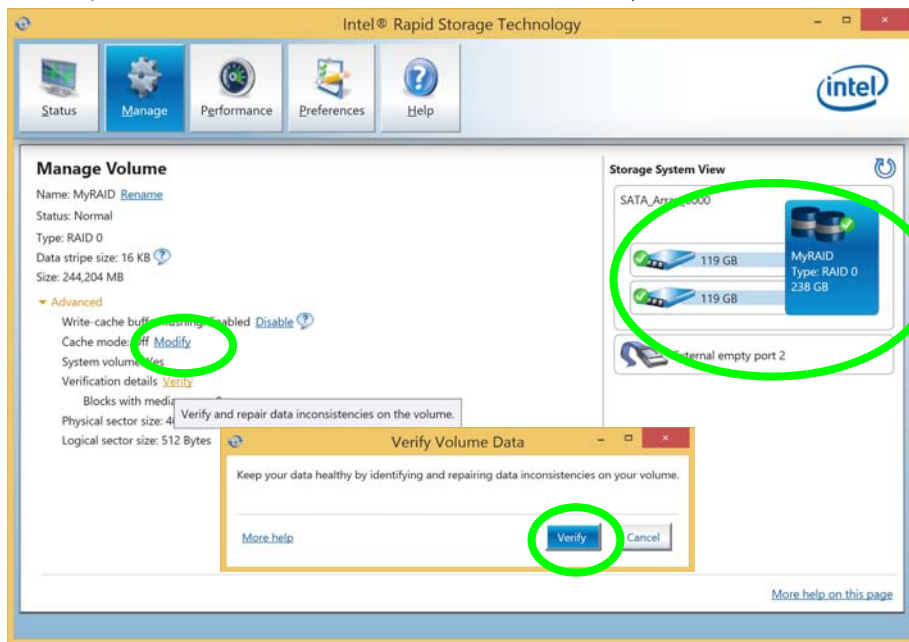
Figure 6 - 46
Intel® Rapid Storage Technology Verify

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.

Manage Volume

Name: MyRAID

Status: Verifying 34% complete Cancel

Type: RAID 0

Data stripe size: 16 KB ?

Size: 244,204 MB

▾ Advanced

    Cache mode: Off

    System volume: Yes

    Verification details

        Verification errors found: 0

        Blocks with media errors: 0

    Physical sector size: 4096 Bytes

    Logical sector size: 512 Bytes

Figure 6 - 47
Intel® Rapid Storage Technology Verify

Verify Volume Data Results ×

Volume MyRAID: Verification complete.
Verification errors found: 0

More help   Close
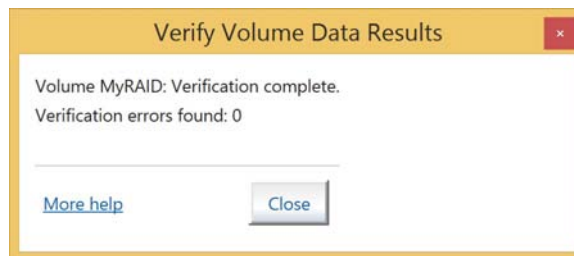
Intel® Rapid Storage Technology for Optane Systems

Intel® Rapid Storage Technology application displays status information on your **Intel® Optane™** 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.
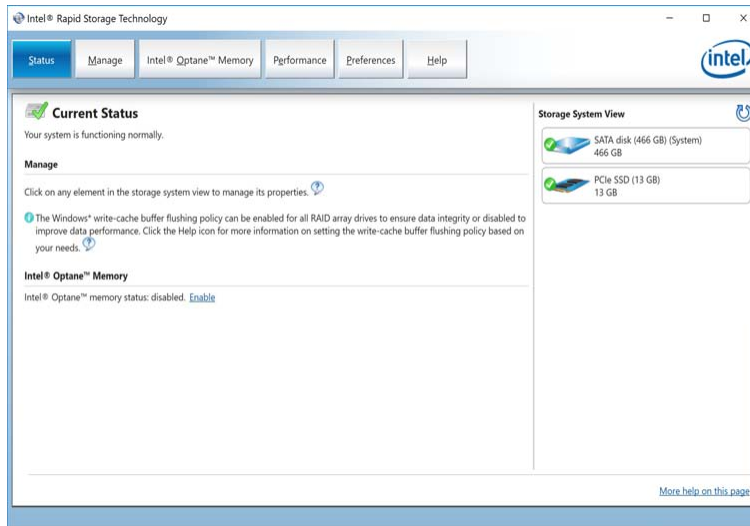
Figure 6 - 48
Intel® Rapid Storage Technology Status

Enabling Intel® Optane™

1. Run the **Intel® Rapid Storage Technology** application.
2. Click **Enable** (or click the Intel **Optane Memory Button** to access the Intel Optane Memory item to **Enable**).

Figure 6 - 49
IRST - Intel® Optane™ Memory (Enable)
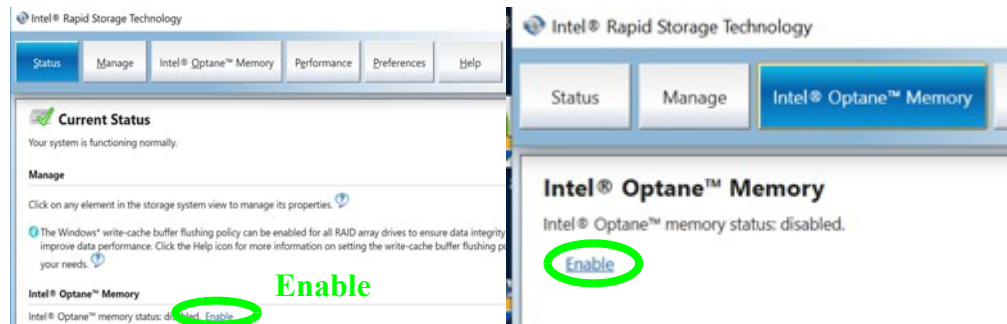
3. The system will pop-up a message and ask you to select a compatible fast drive

Figure 6 - 50
IRST - Intel® Enable Optane™ Memory
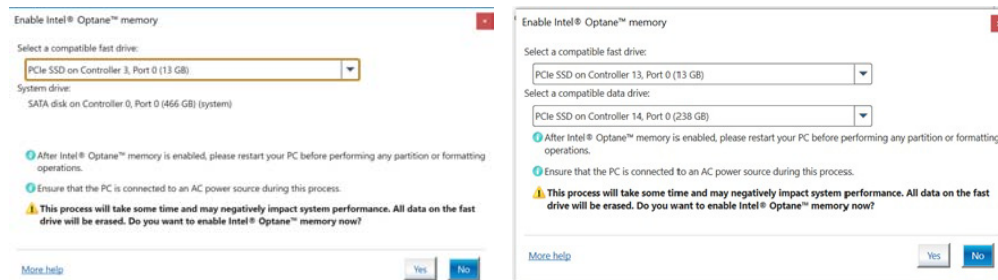
4. You will need to restart the computer after enabling **Optane**, and make sure the system is powered by the powered AC/DC adapter, and not by battery only.
5. Click **Yes** to begin the process (this may take some time).
6. After the process has been completed restart the computer.
7. After restarting can access **Device Manager** (right-click the **Start** menu and select **Device Manager**).
8. Click **Disk drives** to check that the drive should read **Intel Optane ******.
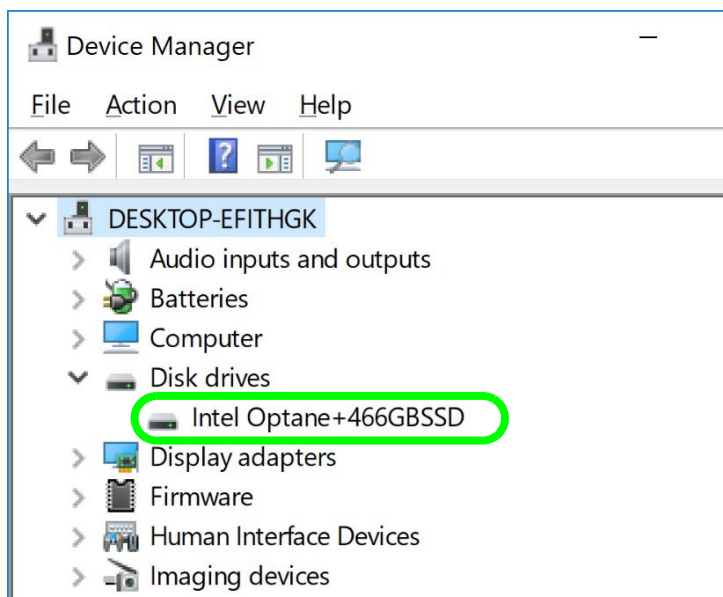
Figure 6 - 51
**Device Manager
(Disk drives)**

6

9. Run the **Intel® Rapid Storage Technology** application (or click the Intel **Optane Memory Button**) to check the status.

Figure 6 - 52
IRST - Intel® Optane™ Memory (Enabled)
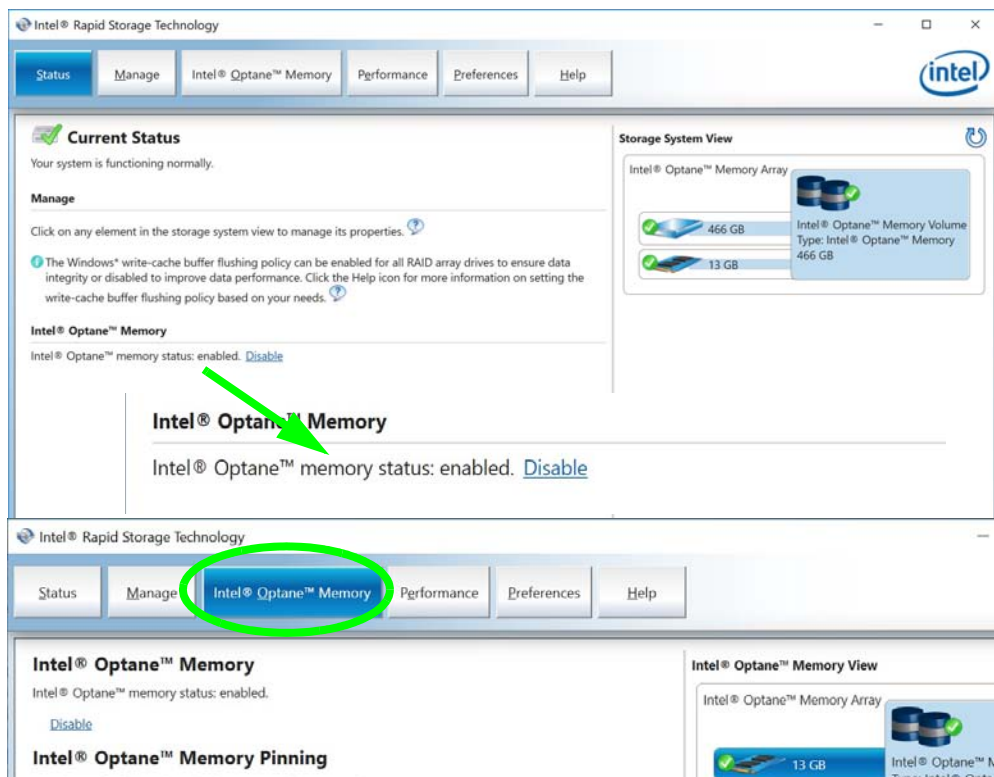
Disabling Intel® Optane™

If you need to disable **Intel® Optane™** for any reason follow these instructions.

1. Run the **Intel® Rapid Storage Technology** application.
2. Click **Disable** (or click the Intel **Optane Memory Button** and click **Disable**).
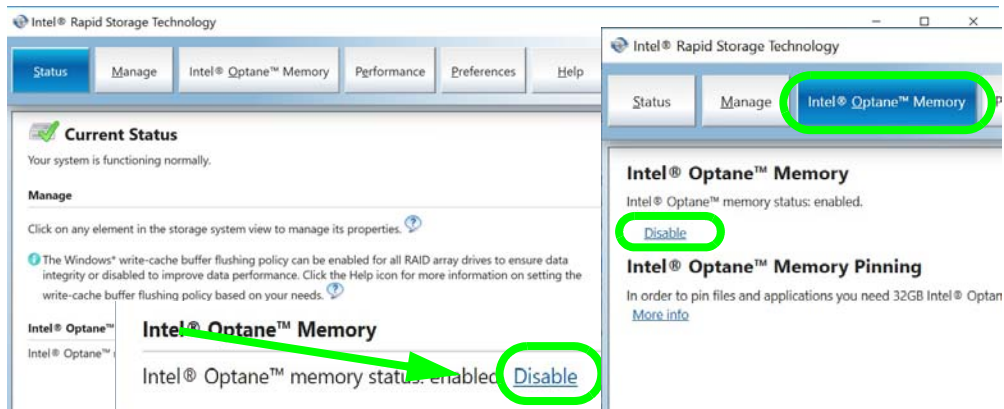
3. Click **Yes** when the message pops up.
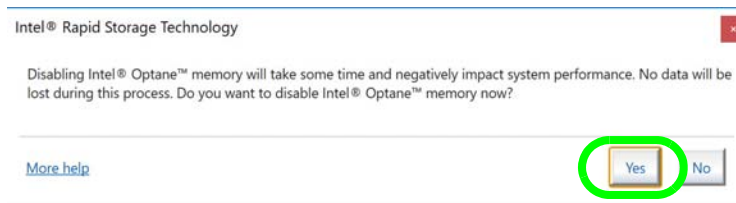
Disabling Intel® Optane™

Disable Intel® Optane™ if you want to reinstall/reset the system or update the IRST driver. See also *"Clearing Intel® Optane™" on page 6 - 27*.

Figure 6 - 53
IRST - Intel® Optane™ Memory (Disable)

Figure 6 - 54
IRST - Yes to Disable

⚠️

HDDs & Intel® Optane™ SSDs

Note that if your system's HDD or Intel® Optane™ SSD is to be transferred to another system for use for any reason, you will need to disable Intel® Optane™ in IRST first.

Go to the BIOS to clear the Intel Optane data.

Removal of any cover(s) and /or screw(s) violates the terms of your warranty.

Figure 6 - 55
IRST - Intel® Optane™ Memory (Status)

4. Restart the computer to complete the process.
5. Run the **Intel® Rapid Storage Technology** application.
6. The **Status** of **Intel® Optane™ Memory** is indicated in the Window.
7. To enable **Intel® Optane™ Memory** follow the process indicated in *"Enabling Intel® Optane™" on page 6 - 70*.

PC Camera

Use the **Fn** + **F10** key combination (see *"Function Keys & Visual Indicators" on page 1 - 20*) 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 ❷ *Figure 1 - 2 on page 1 - 7*/*Figure 1 - 3 on page 1 - 8*).

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

6

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).
3.   The interface displays two buttons on the right of the screen; one for photo and one for video.

Photo   Video
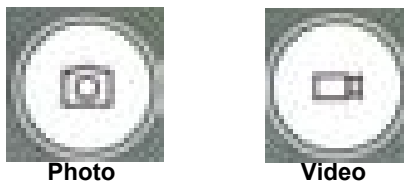
Figure 6 - 56
Camera App Mode Icons

4.   Simply click on the appropriate button (or arrow) to switch to either photo or video modes.
5.   You can use the buttons on the left of the screen to access the **Settings, HDR/Brightness** and **Photo Timer**.

Auto   Pro
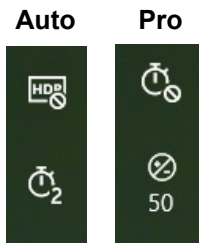
Figure 6 - 57
Camera Menu Buttons

🖉
Auto or Pro Modes

The menu buttons displayed on the left side of the screen will depend on the mode chosen in **Settings** ⚙. **Pro** mode will display the **timer and brightness** buttons, and with Pro Mode disabled (**Auto mode**) the **timer and HDR** buttons will be displayed.

6

6.   Click **Settings** ⚙ to access the camera settings menu to select/deselect **Pro mode**, make adjustments for **Photo Quality, Framing grid**, **Time lapse**, **Video Quality** and **Flicker reduction**.

🖉

Camera Settings

The **Self Timer** can be set to take Photos after **2**, 5 or *10* seconds.

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

The **Photo Quality** can be changed to that which the system supports.

Time lapse can be set to keep taking photos until the camera button is pressed again.

The **Video Quality** 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. a 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 - 58
Camera Settings

6

7. With the **Pro mode** selected (in Settings ⚙) you can access the **Brightness** button to adjust the brightness.
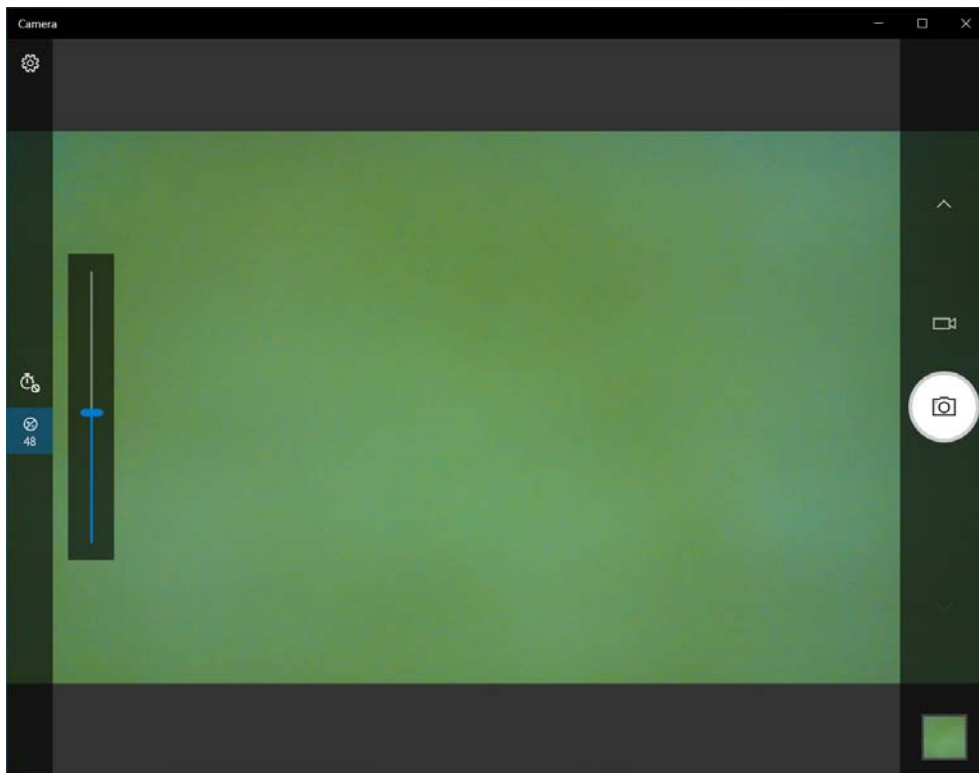
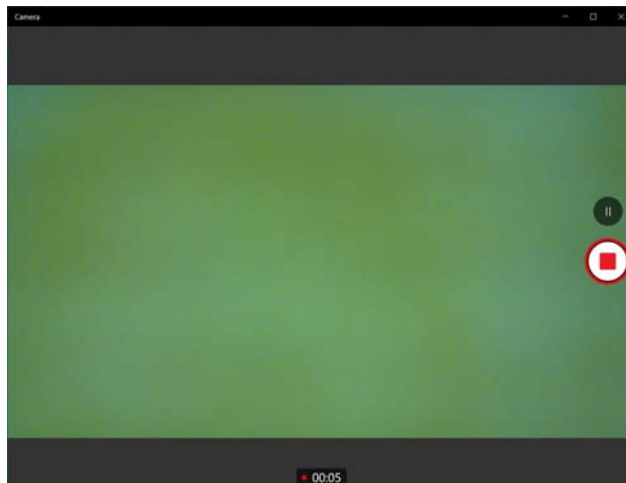*Figure 6 - 60*
Camera Brightness Adjustment (Pro mode)

8. In **Auto mode** you can toggle **HDR** on or off.
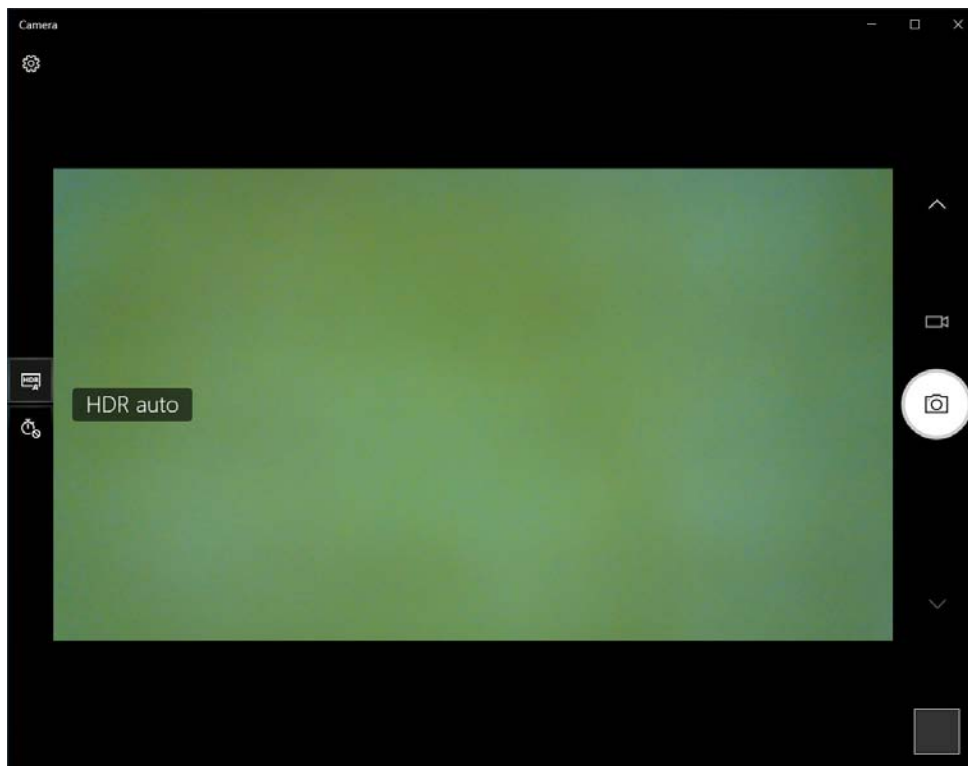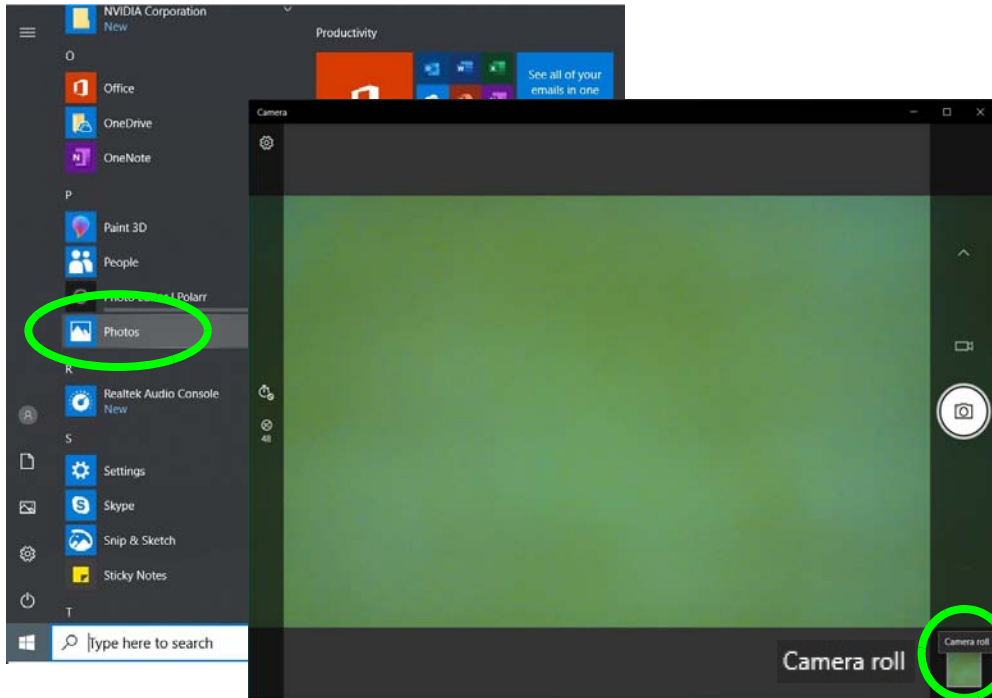

Figure 6 - 61
**Camera HDR
(Auto mode)**

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 [icon] (you can type "camera" into the search box to find the Camera app).
3. Click to select either **photo** [icon] or **video** [icon] modes.
4. Click the photo icon to take a picture.
5. Click on the video icon [icon] to start video capture (when video capture begins a timer will appear at the bottom of the screen).
6. To stop video capture click the stop [icon] button (you can also pause [icon] the video capture).

Figure 6 - 62
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)**.** You can also access the photos from the **Camera roll** icon at the bottom right of the Camera app screen.

Figure 6 - 63
**Photos App
(For Captured
Photos & Videos)
&
Camera Roll in the
Camera App**

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.

6

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 under **Security Device Support** menu and select **Enable**.
6. You will then need to press **F4** to save the changes and restart the computer.
7. You can now manage the TPM from *Windows*.

🖉
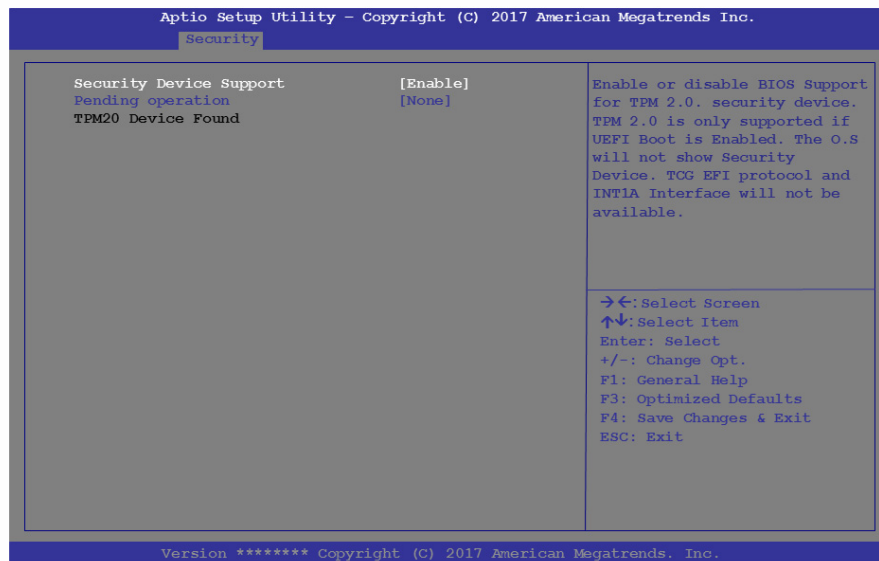
Clearing TPM Information

If you need to clear existing TPM information then select **Pending Operation** in the **Security Device Support** menu, and select **TPM clear**, and then press **F4** to save the configuration changes and restart the system.
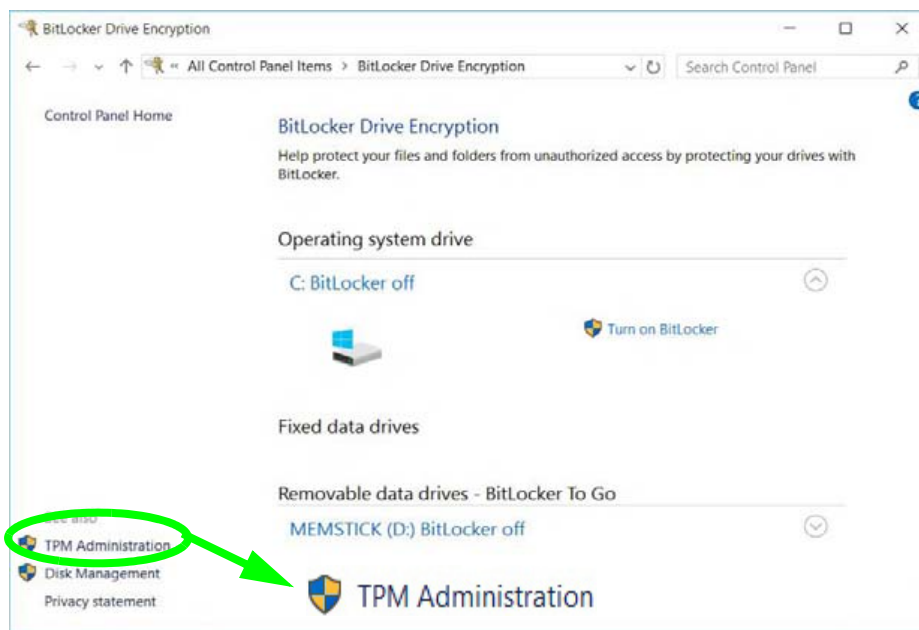
Figure 6 - 64
TPM State (Enable)

6

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 - 65
**BitLocker Drive Encryption (TPM Administration)**

4. 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.
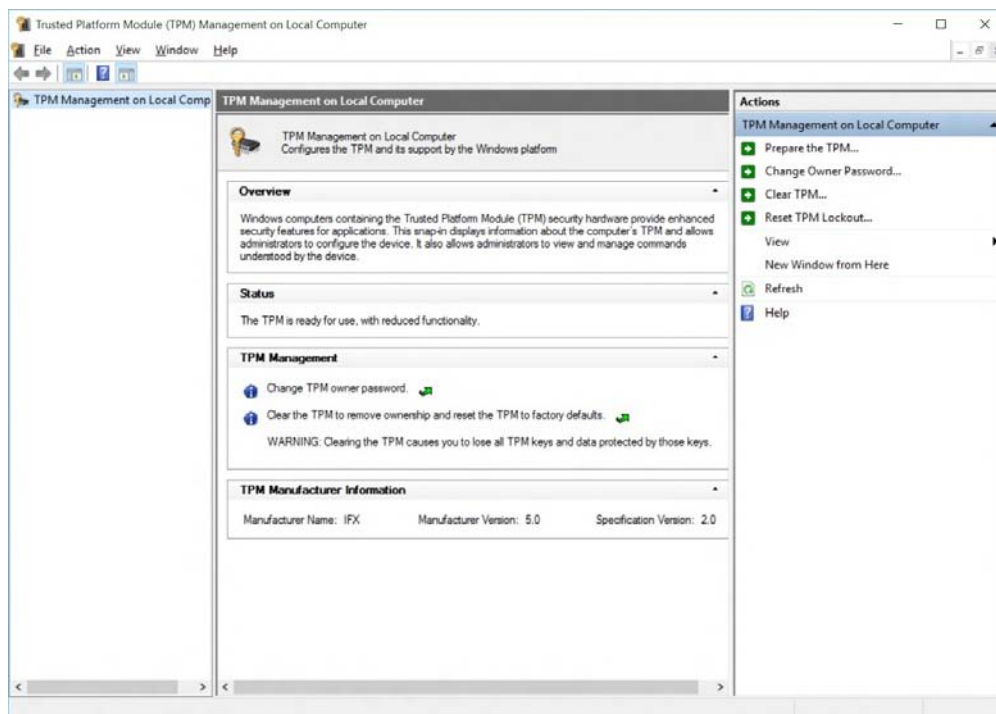
Figure 6 - 66
Trusted Platform Module (TPM) Management on Local Computer Administration

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
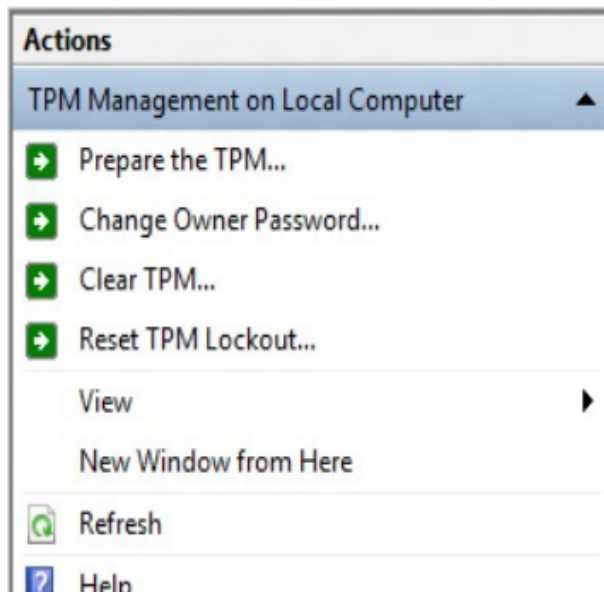
Figure 6 - 67
TPM Actions Menu

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.
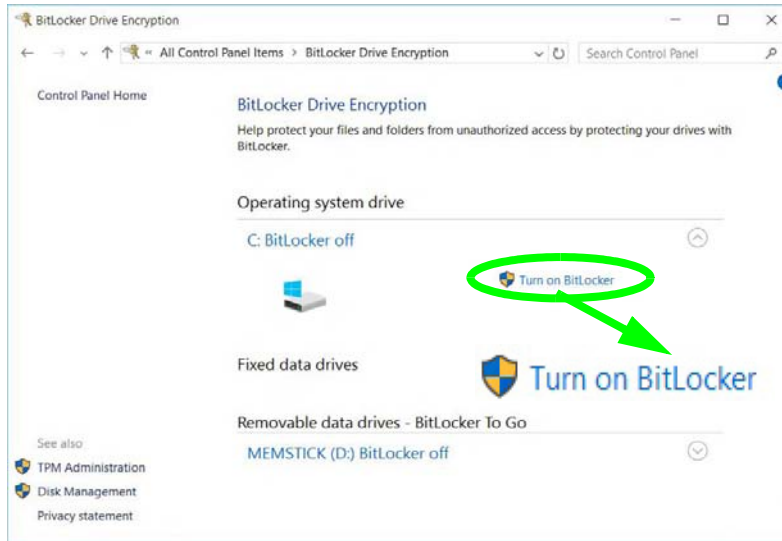
Figure 6 - 68
BitLocker Drive Encryption

3G/4G Module

(**For Models A & B Computers 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 - 4* 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 (see page *6 - 33*).

⚠

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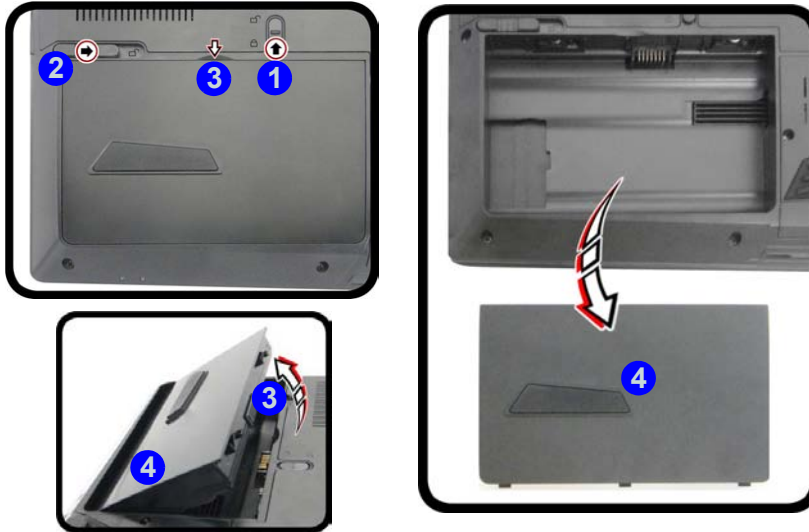
Important Notice - 3G/4G & Bluetooth/Wireless LAN Modules

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 SIM Card Insertion

You will need to remove the battery in order to insert the USIM card.

1. Turn the computer **off**, and turn it over.
2. Slide the latch **1** in the direction of the arrow.
3. Slide the latch **2** in the direction of the arrow and the battery will pop up to be released.
4. Lift the battery up from the groove at point **3**.
5. Remove the battery from the bay **4**.

Warranty Warning

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

Figure 6 - 69
Battery Removal

Modules

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Figure 6 - 70
USIM Card & Battery Insertion

6. Remove the battery from the bay **4**.
7. Insert the USIM card **5** as illustrated below (pay careful attention to the orientation of the card as the gold contact side of the card should face upwards) until it clicks fully into position.
8. 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 (however your machine should be powered off when removing the battery in any case).
9. Reinsert the battery **6** as illustrated and slide the latches **7** & **8** into the lock position.
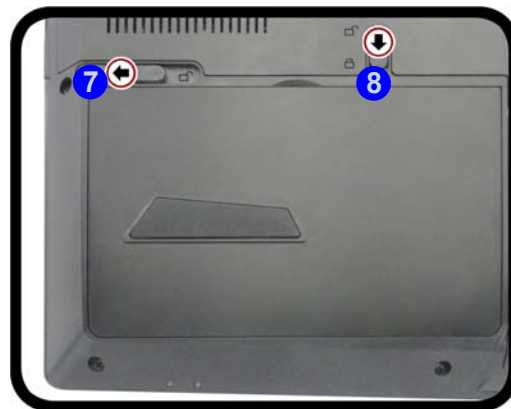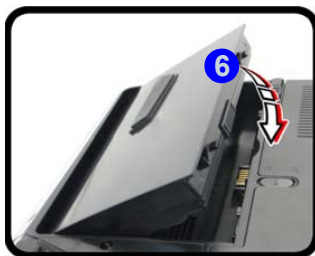
3G/4G Configuration in Windows 10

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** a list of available access points will appear.
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.

6

Modules

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.

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Basic Hints and Tips

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

- **Power** - Is the computer actually plugged into a working electrical outlet? If plugged into a **power strip**, make sure it is actually working. Check the **LED Power Indicators** (see *"LED Indicators" on page 1 - 9*) to see the computer's power status.

- **Connections** - Check all the **cables** to make sure that there are no **loose connections** anywhere.

- **Power Savings** - Make sure that the system is not in **Hibernate** or **Sleep** mode by pressing the keys configured in your P*ower 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 1 - 5, on page 1 - 20*).

- **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 - 17*).

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

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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.

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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.

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Problems and Possible Solutions

Problem	Possible Cause - Solution
You turned on the **power** but it doesn't work.	*Battery missing / incorrectly installed.* 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.
The battery **LED power** indicator ⬚ III , is blinking orange.	*Low Battery.* Plug in the DC power source. If the computer doesn't start up immediately, turn it off then on again.
You are **losing battery power** too quickly.	*The system is using too much power.* If your *OS* has a *Power Options* scheme (see *"Power Plans" on page 3 - 5*) check its settings. You may also be using a *peripheral device/USB device* that is drawing a lot of power.
Actual **battery operating time** is shorter than expected.	*The battery has not been fully discharged before being recharged.* Make sure the battery is fully discharged and recharge it completely before reusing (see *"Battery Information" on page 3 - 16*).
	Power Options have been disabled. Go to the **Control Panel** in *Windows* and re-enable the options.
	A peripheral device/USB device is consuming a lot of power. Turn off/remove the unused device to save power.

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Problem	Possible Cause - Solution
The computer feels **too hot**.	Make sure the computer is properly ventilated and the Vent/Fan intakes are not blocked. If this doesn't cool it down, put the system into **Hibernate** mode or turn it off for an hour. Make sure the computer isn't sitting on a thermal surface (see *"Overheating" on page 1 - 22*, *1 - 26* & *1 - 27*). Make sure you're using the correct adapter. 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.
Nothing appears on screen.	*The system is in a power saving mode.* Toggle the sleep/resume key combination, **Fn + F12** (see *"Configuring the Power Buttons" on page 3 - 9*). *The screen controls need to be adjusted.* Toggle the screen control key combinations **Fn + F8/F9**. If you're connected to an external monitor, make sure it's plugged in and turned on. You should also check the monitor's own brightness and contrast controls. *The computer is set for a different display.* Toggle the screen display key combination, **Fn + F7**. If an external monitor is connected, turn it on. *The **screen saver** is activated.* Press any key or touch the **TouchPad**.
No image appears on the **external monitor** I have plugged in and powered on.	*You haven't installed the video driver and configured it appropriately from the Control Panel.* See *Appendix C* for instructions on installing and configuring the video driver.

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Problem	Possible Cause - Solution
The **Thunderbolt Port doesn't appear to work.**	*The Thunderbolt Port must be enabled in the BIOS*. You will need to enable Thunderbolt support in the BIOS *"Intel(R) Thunderbolt Technology (Advanced Menu > Intel(R) Thunderbolt)" on page 5 - 11*.
An **external display** will not connect to the **Thunderbolt Port.**	*You have not set the Thunderbolt Port for display devices.* See *"DDI Control (Advanced Menu > Advanced Chipset Control)" on page 5 - 10*.
Activity (e.g. moving a mouse) **on a device attached to the** USB 3.1 Gen 2 Port (Type C) / **Thunderbolt™ 3 Combo Port fails to wake the computer** from a sleep state.	*As this is actually a Thunderbolt Port (which also functions as a USB 3.1 port) it does not support the Wake on USB function associated with the computer's conventional USB ports.* can enable/disable the Thunderbolt port in the BIOS (see *"Intel(R) Thunderbolt Technology (Advanced Menu > Intel(R) Thunderbolt)" on page 5 - 11*), and disabling the port will also disable its functionality as a USB port.
One of the **DisplayPorts doesn't work.**	*You have enabled the Thunderbolt port as Display only and this turns one of the DisplayPorts off.* See *"DDI Control (Advanced Menu > Advanced Chipset Control)" on page 5 - 10*.
The **Windows Key + P** key combination does not allow the configuration of **multiple displays.**	*If the system is set to Clone mode with 2 or 3 external displays connected, then you must use the NVIDIA control panel to configure the displays.*
The sound cannot be heard or the **volume is very low**.	*The volume might be set too low.* Check the volume control in the *Volume Control Panel* in the *Windows* notification area, or use the key combination **Fn + F5** and **F6** (see *"Function Keys & Visual Indicators" on page 1 - 20*) to adjust.

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Troubleshooting

Problem	Possible Cause - Solution
You forget the **boot password**.	*If you forget the password, you may have to discharge the battery of the CMOS.* Contact your service representative for help.

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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.

Problem	Possible Cause - Solution
Unwelcome numbers appear when typing.	*Num Lock is turned ON* (see *"LED Indicators" on page 1 - 9*).

🖉
Other Keyboards

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

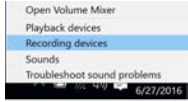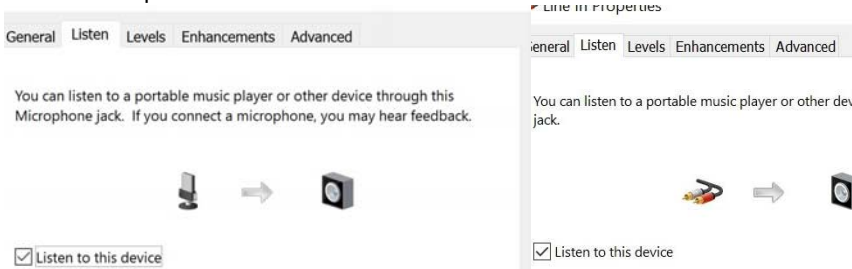| Problem	Possible Cause - Solution
The **system freezes** or the screen goes dark.	*The system's power saving features have timed-out.* Use the AC/DC adapter, press the sleep (**Fn + F12**) key combination, or press the power button if no LEDs are lit.

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Problem	Possible Cause - Solution
The system never goes into a **power saving mode**.	Power Options features are not enabled. Go to the **Windows** Power Options menu and enable the features you prefer (see *"Power-Saving States" on page 3 - 7*). Make sure you have enabled **Hibernate** mode from the control panel.
The **Wireless LAN/Bluetooth** modules cannot be detected.	*The modules are off as the computer is in **Airplane Mode**.* Check the LED indicator ✈ to see if it is in **Airplane Mode** (see *"LED Indicators" on page 1 - 9*). Use the **Fn + F11** key combination to toggle **Airplane Mode** on/off (see *Table 1 - 5, on page 1 - 20*).
The **PC Camera** module cannot be detected.	*The module is off.* Press the **Fn + F10** key combination in order to enable the module (see *"Function Keys & Visual Indicators" on page 1 - 20*). Run the camera application to view the camera picture.
The **Wireless LAN/Bluetooth** modules cannot be configured.	The driver(s) for the module(s) have not been installed. Make sure you have installed the driver for the appropriate module (see the instructions for the appropriate module in *"Wireless LAN Module" on page 6 - 30* and/or *"Bluetooth & WLAN Combo Module" on page 6 - 45*).
A file cannot be copied to/from a connected **Bluetooth** device.	*The transfer of data between the computer and a Bluetooth enabled device is supported **in one direction only (simultaneous data transfer is not supported)**.* If you are copying a file from your computer to a Bluetooth enabled device, you will not be able to copy a file from the Bluetooth enabled device to your computer until the file transfer process has been completed

7

Troubleshooting

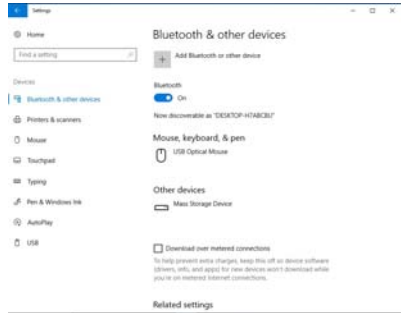| Problem	Possible Cause - Solution
The computer is off (or in Sleep Mode) but powered by the AC/DC adapter plugged in to a working outlet, or by battery with a capacity above 20%. **I have plugged a device into the powered USB port** in order to charge it, but **the device is not charging**.	*The port is not powered on.* Toggle power to the port using the **Fn + power button** combination. *This function may not work with certain external USB compliant devices (check your device's documentation).* If this is the case, **power the computer on and connect the external USB device** in order to charge it. **Note** that this function is designed to help **charge USB compliant devices**, but is **not designed to allow their operation**.
The system will not start up when being operated **in a low temperature environment**.	*The lowest operational temperature tolerance of the system is listed at 5°C.* In addition to being operational at this temperature or above, if the system is to be run in DC mode (on battery) in low-temperature conditions, the battery must have a remaining charge capacity of 80%+.
No sound can be heard through an **HDMI** connected display.	*You have not configured the HDMI audio output.* See *"HDMI Audio Configuration" on page C - 27*.
The **Sound Blaster** audio controls don't work when the system is connected to an **external display through an HDMI/Display Port cable**.	*Note that Sound Blaster Audio will be disabled when you are connecting to an external display through an HDMI or Display Port connection.* See *"Sound Blaster Audio & HDMI/Display Port" on page C - 7*.
Attached **5.1 surround speakers** only appear to **output through 2 channels** when the **Sound Blaster Audio** system is installed.	*Change the speaker type in the Sound Blaster AP as follows:* Go to the **Sound Blaster Connect** application and select **Setup** and click on **SPEAKER**. Under **Select Speaker Configuration** click to select **5.1**, and under **Select Speaker Type** click to select **Tower**.

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Problem	Possible Cause - Solution
I can't change the speaker level or **mute the internal speaker or headphone** using the volume bar.	*You need to* **install both the Audio and Creative Sound Blaster drivers** *to enable audio configuration.* **Make sure that after installing the Audio driver (see page *4 - 9*) you also install the Creative Sound Blaster Driver** (see page *6 - 52*). If you need to uninstall the audio driver for any reason, and then reinstall it, make sure you reinstall the Creative Sound Blaster driver.
The **fingerprint reader has problems scanning fingers.**	*When fingers are wet or sweaty the software application may have difficulty reading a scanned finger.* Make sure your fingers are clean and dry when attempting to scan them across the sensor for detection.
When the **system is set to RAID Level 1** the lower right corner of the screen will display the message "**Data on one or more volumes is protected from a disk failure**" when entering Windows.	*This is normal as the system is simply informing you that the RAID system is protecting you from a disk failure, and if one disk dies your data will be still be safe.* If you wish to hide this message **deselect "Show Storage System Information"** in the Intel Rapid Storage Technology control panel.
When the **OS has been installed on a SATA disk or SSD** and you want to add 2 * M.2 2280 SSD cards configured as RAID 1 or RAID 0, while re-installing the OS on the 2 * M.2 2280 SSD Cards, **the system fails to load the RAID driver**.	*You will need to remove all partitions on the SATA disk or SSD with the OS installed, or clean the SATA disk or SSD with the OS installed* first, before re-installing OS. It will then load the RAID driver OK.
Gaming performance is slow.	*It is recommended that you use Maximum fan speed when playing games*. Use the **Fn + 1** key combination to adjust the fan speed.

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Troubleshooting

Problem	Possible Cause - Solution
I **can't hear any sound from the microphone/Line-In in my connected headset**, when trying to test the audio playback.	*You need to enable listening to the microphone/line-in in the audio control panel in order to hear any sound through your connected headset as follows:* 1. Right-click the volume control icon in the taskbar. 2. Select **Recording Devices**. Open Volume Mixer Playback devices Recording devices Sounds Troubleshoot sound problems 6/27/2016 3. Double-click **Microphone/Line-In** and select **Listen**. 4. Click to put a check in **Listen to this device** check box. General Listen Levels Enhancements Advanced General Listen Levels Enhancements Advanced You can listen to a portable music player or other device through this Microphone jack. If you connect a microphone, you may hear feedback. You can listen to a portable music player or other dev jack. ☑ Listen to this device ☑ Listen to this device 5. Click **Apply**. 6. You can then listen to the playback though the headset for testing. 7. Remember to disable this feature (remove the check from the **Listen to this device** check box) otherwise you may hear an echo from the internal microphone when you disconnect the headset.

Problem	Possible Cause - Solution
When using a **Bluetooth headset the audio appears to be mono** and not stereo.	*This is a common issue with Bluetooth headsets. To resolve this issue do the following (you will need to **repeat this procedure after every boot up**, **restart**, or when the **system resumes from hibernation**):* 1. Go to the **Devices & Printers** control panel in *Windows*. 2. Double-click the Bluetooth headset. 3. Click **Connect** to complete the stereo connection. **OR** 1. Go to the **Sound** control panel in *Windows*. 2. Right-click (in the **Playback** tab) the Bluetooth Stereo Audio device (the default device is **Headset**). 3. Click **Connect** to complete the stereo connection.

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Problem	Possible Cause - Solution
A file being copied to/from a connected **Bluetooth** device appears to be **transferring very slowly**.	*You may have the **Bluetooth control panel** (Settings > Devices > Bluetooth) open*. When transferring data between the computer and a Bluetooth enabled device, **make sure that the Bluetooth control panel is closed**. **Bluetooth Control Panel (Settings > Devices)** **Close the Bluetooth control panel** (pictured on the right) when transferring data between the computer and a Bluetooth enabled device.

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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 of 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**".

Thunderbolt Support

You can **enable/disable** Thunderbolt support (and set the security level) in the **BIOS/Aptio Setup Utility**. It is enabled in Unique ID mode by default.

1. Restart the computer.
2. Enter the **Aptio Setup Utility** (BIOS) by pressing **F2** at startup.
3. Use the arrow keys to select the **Advanced** menu.
4. Select **Intel(R) Thunderbolt** and press Enter.
5. Select **Intel(R) Thunderbolt Technology,** press Enter and select **Enabled/Disabled**.
6. If Enabled select **Security Level** and press Enter.
7. Select the level required from the menu and press Enter after making the selection:

- **Legacy mode** will allow any devices to be connected.
- You can set the port to allow only devices with a **Unique ID** to connect.
- If you set a **one time saved key** to ensure only approved devices can connect.
- Setting the port to **DP++** will only allow display devices to connect to the port, and no data connections will be allowed.

8. Press **F4** to save any changes made and restart the computer.

Ejecting Thunderbolt Devices
To prevent system problems **do not simply pull the cable out from the Thunderbolt port**. Go to the notification area of the taskbar in the Desktop app and click on the **Safely Remove Hardware and Eject Media** icon.

7

Intel® Optane™ Notes

Intel® Optane™ is a combination of a compatible memory device and Intel Rapid Technology software. This combination is designed to speed up your system performance. However note the following;

- The **SATA Mode** should be set **BEFORE installing an operating system**, and after you have backed up all necessary files and data. See *"Setting Up SATA RAID, Optane™ 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 **Intel RST Premium,** or to **AHCI** (see *"IRST Driver Installation" on page 6 - 62*).

- It is very important to make sure that when you create a hard disk drive partition when installing Windows for an **Intel® Optane™** system, that you leave at least a minimum of 5MB of unallocated space (note this is 5MB only, not GB).

- **After setting the SATA mode to Intel® Optane™** and installing the Intel® Rapid Storage Technology application, **DO NOT uninstall the Intel® Rapid Storage Technology application**.

- If you are reinstalling a system that has previously been setup in **Intel RST Premium mode, make sure you have cleared the Intel Optane Memory** (see *"Clearing Intel® Optane™" on page 6 - 27*). If you haven't cleared the Optane setup you may not find a suitable hard disk drive partition on which to reinstall an operating system.

- If you need to reinstall an operating system, uninstall the IRST driver/application or swap the hard disk drive (or Intel® Optane™ SSD) **make sure you have cleared the Intel Optane Memory** (see *"Clearing Intel® Optane™" on page 6 - 27*).

7

Troubleshooting

7

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.

A

Ports and Jacks

Item	Description
2-in-1 Audio Jack (Headphone-Out & S/PDIF-Out Jack)	**Headphones** may be connected through this jack. **Note**: Set your system's volume to a reduced level before connecting to this jack. In addition this jack also functions as a S/PDIF (**Sony/Philips Digital Interface Format**) Out port allowing you to connect your DVD-capable PC to a Dolby AC-3 compatible receiver for "5.1" or 'dts' surround sound.
Card Reader SD / MMC	The card reader allows you to use the following digital storage cards: MMC (MultiMedia Card) / RSMMC SD (Secure Digital) / Mini SD / SDHC / SDXC (up to UHS-II) Push the card into the slot and it will appear as a removable device.
DC-In Jack	Plug the supplied AC/DC adapter into this jack to power your computer.
HDMI-Out Port HDMI HIGH-DEFINITION MULTIMEDIA INTERFACE	The HDMI-Out (**High-Definition Multimedia Interface**) port is an audio/video connector interface for transmitting uncompressed digital streams. This allows you to connect an external monitor, TV or Flat Panel Display etc. as a display device (see *"Configuring an External Display (NVIDIA)" on page C - 16*) by means of a HDMI cable. **Note that HDMI carries both audio and video signals.**
Line-In Jack	The Line-In jack allows you to play audio sources through the computer's speakers. Note that audio input through Line-in will default to the **mute** setting. To set up your audio sources to play through the Line-in jack go to the **Sound** 🔊 control panel and make sure the Mute box is not checked.

A

Item	Description
Line-Out Jack ((♦))	The Line-Out jack allows you to play audio sources through external speakers. **Note that the Headphone-Out & S/PDIF-Out Jack is preferable for a headset, and the Line-Out Jack is a raw audio signal ideal for use with powered speakers or a stereo system**.
Microphone-In Jack	Plug an external microphone in to this jack to record on your computer.
Mini DisplayPort 1.3	The Mini DisplayPort is a digital display interface standard that allows a digital audio/video interconnect, between the computer and its external display or a home-theater system. There are two Mini DisplayPorts on this computer. Note **When you enable a display only connection for the Thunderbolt port (in the BIOS) then one of the DisplayPorts will be turned off (see page _A - 4_)**. 🔔 **DisplayPort Cables** When using cables connected to the Display Port, **try to make sure that the cables are not bent excessively**, as bending the cables may cause signal problems.
RJ-45 LAN Jack	This port supports LAN (Network) functions. **Note**: Broadband (e.g. ADSL) modems usually connect to the LAN port.
Security Lock Slot	To prevent possible theft, a Kensington-type lock can be attached to this slot. Locks can be purchased at any computer store.

A

Interface (Ports & Jacks)

Item	Description
Thunderbolt™ 3 Port/ USB 3.1 Gen 2 Type C Port ⚡	This unified Thunderbolt 3 port/ USB 3.1 port allows for the connection of external peripherals to the computer by combining PCI Express (PCIe), DisplayPort (DP), USB 3.1 and its own Thunderbolt 3 technologies. Up to seven peripherals may be supported by one connector by daisy-chaining the devices. Devices supported include HDDs/SSDs, Audio Interfaces, docks, display devices, cameras, network cables etc. Install the driver as instructed in *"Thunderbolt Port" on page 4 - 7*. This will install the Thunderbolt software to your computer, and this can be accessed by clicking or double-clicking the icon ⚡ in the Start screen, Desktop app or notification area of the taskbar. **Thunderbolt support can be enabled (default) or disabled in the BIOS** *"Intel(R) Thunderbolt Technology (Advanced Menu > Intel(R) Thunderbolt)" on page 5 - 11*. You can also set the level of security for the Thunderbolt port in the BIOS. You can also set the security level of the port in the BIOS (see *"Security Level (Advanced Menu > Intel(R) Thunderbolt)" on page 5 - 12*). 1. Plug a Thunderbolt™ device into the Thunderbolt™ port. 2. Some Thunderbolt devices will require their own driver installation at this point. 3. Access the Thunderbolt software to view information on device chains. **The display configuration for the Thunderbolt ports and Mini Display Ports can be set up in the BIOS (see** *"DDI Control (Advanced Menu > Advanced Chipset Control)" on page 5 - 10*). See over for details on how to eject Thunderbolt devices.

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Item	Description

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Ejecting Thunderbolt Devices

In order to prevent system problems make sure you **do not simply pull the cable out from the Thunderbolt port**. The hardware must be ejected safely:

1. Go to the notification area of the taskbar in the Desktop App and click on the **Safely Remove Hardware and Eject Media** icon.
2. Click on Eject "*Thunderbolt Device Name*".
3. When yo u see the "*Safe to Remove Hardware*" message you can remove the cable.

Interface (Ports & Jacks)

Item	Description
USB 3.0 Port (USB 3.1 Gen 1) Powered USB 3.0 (USB 3.1 Gen 1) Combo Port USB 3.1 (USB 3.1 Gen 2 Type C) Port USB 2.0 Port (For **Model A & B** Computers Only)	These USB ports are for low-speed peripherals such as keyboards, mice or scanners, and for high-speed peripherals such as external HDDs, digital video cameras or high-speed scanners etc. Devices can be plugged into the computer, and unplugged from the computer, without the need to turn the system off (if the power rating of your USB device is 500mA or above, make sure you use the power supply which comes with the device). The USB 3.0 (USB 3.1 Gen 1) ports are denoted by their blue color and are backwards-compatible with USB 2.0. In addition there is **a USB 3.1 Gen 2 port (Type C) capable of 10Gbps SuperSpeed+ for a single device.** Type C ports are the smaller sized USB ports, and the larger USB Type A ports are denoted by their blue color. **Model A** computers also have a USB 2.0 port. *Note:* The **powered USB 3.0 port** (see *Figure 1 - 14 on page 1 - 24*) may be toggled on /off by means of the **Fn + Power Button** key combination. When the powered USB port is on it will supply power (**for charging devices only, not for operating devices**) when the system is off but still powered by the AC/DC adapter plugged into a working outlet, or powered by the battery with a capacity level above 20% (this may not work with certain devices - see page *7 - 12*). **Note:** This function is designed to help **charge USB compliant devices**, but is **not designed to allow their operation**. **Note:** The maximum amount of current supplied by USB Type-C ports is 500 mA for USB2.0/900 mA for USB 3.1.

<div style="border:2px solid red">

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Ejecting USB Devices

In order to prevent system problems **do not simply directly pull cables out from the USB port** when removing USB devices. Go to the notification area of the taskbar in the Desktop app, and click on the **Safely Remove Hardware and Eject Media** icon. If you have quickly unplugged a device from the USB port, and then can't find the device when re-plugged, you will then need to restart the system in order to find the device again.

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Appendix B: Control Center

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 and settings. Click the **Control Center** icons to toggle the appropriate function, or hold the mouse button down and move the dial control where applicable.

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 to12) **profiles** to which the settings are applied. Click **Flexikey** in the Control Center to launch the application.

B

Control Center

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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.

Flexikey® Access

The **Flexikey®** is accessed from within the Control Center by clicking **FlexiKey®** in the top left of the Control Center.
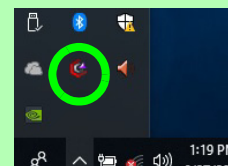
Figure B - 1 **- Control Center & FlexiKey**

B

Control Center Menus

The Control Center contains 5 menu headings (**System Monitor**, **Basic Setting, LED Device, FlexiKey** and **Extra Setting**) in the top left of the Control Center. Click the menu headings and then click any of the buttons outlined on the following pages.
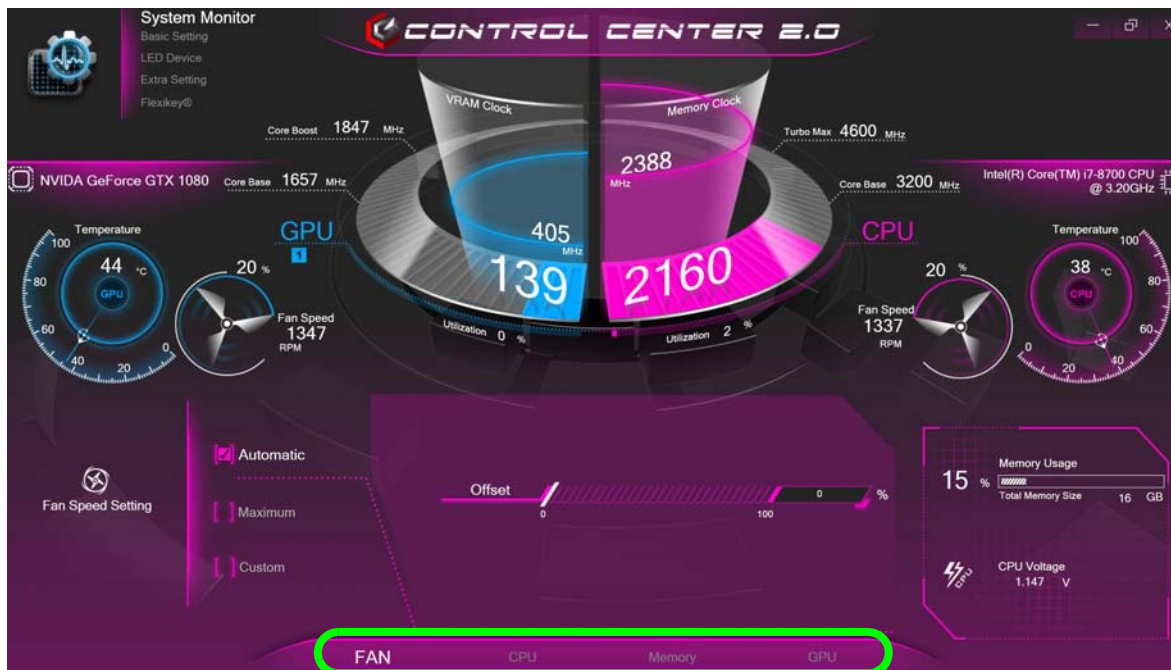

Figure B - 2 **- Control Center Menus**

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Overclocking Issues

Note **overclocking** the system (CPU/Memory/GPU) by making alterations to clock frequency and/or voltage may cause hardware damage, reduce system stability, the useful life of the system and affect system data integrity. Therefore **overclocking** the system **is enabled at the user's own risk**, and is **not covered in the warranty terms**.

Overclocking should only be enabled when powered by a plugged-in adapter, and not on battery power.

A warning message will appear when you have activated CPU/Memory overclocking, click **OK** to activate the changes or click **Cancel** to return to the previous settings.
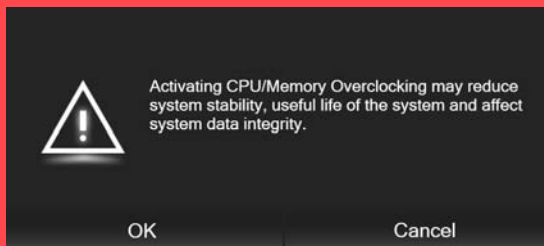

Figure B - 4 - **CPU/Memory Overclocking Warning**

Resetting the System In Case of Errors

If you get any system errors, to reset the computer you can press and hold the power button to force the system to shutdown. To restart **press and hold the power button while holding down the Fn + D key combination (for the CPU reset or Fn + G for the GPU reset)**.The overclocking settings will be **OFF** after restart.

Control Center

Fan (System Monitor)

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. You can use the **Offset** slider 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.

The **Custom** setting allows you to click and drag on any of the 2 midrange nodes on the graph in order to adjust the temperature parameters of the **CPU Fan** or **GPU Fan** (click on the CPU Fan or GPU Fan icon for either on to select it, then click and drag either of the midrange nodes), then click **Save** to retain the setting changes.

Figure B - 5 **- System Monitor - CPU/GPU Fan Custom Settings**

CPU (System Monitor)

You can adjust the **CPU** setting by adjusting the sliders for the **CPU Ratio Override**, then click **Save** to retain the setting changes.
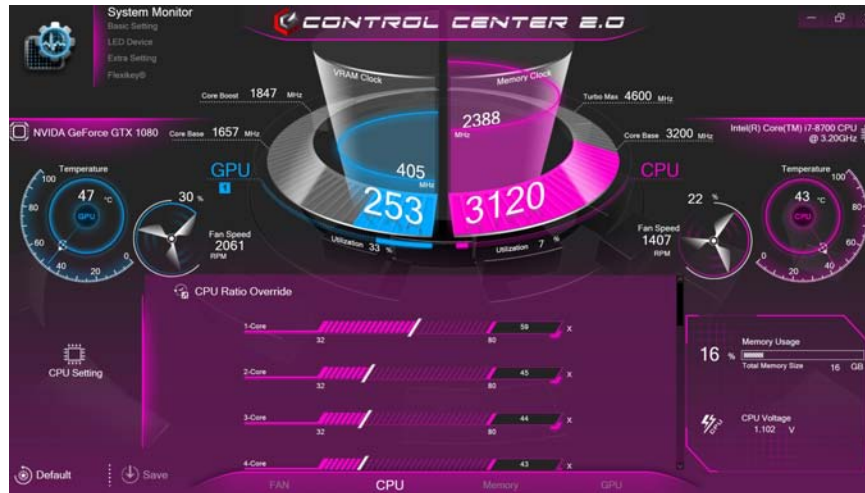

Figure B - 6 **- System Monitor - CPU Settings**

Memory (System Monitor)

You can adjust the **Memory** setting by clicking the **DIMM Profile** for **Default, Custom** (you can then adjust individual settings) **or XMP1**, then click **Save** to retain the setting changes.
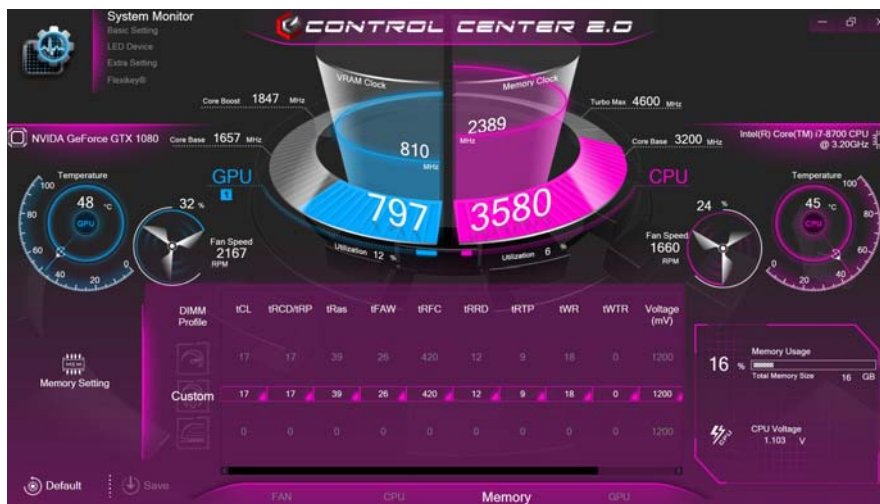

Figure B - 7 **- System Monitor - Memory Settings (Custom)**

GPU (System Monitor)

The **GPU** setting can be used to adjust the GPU Core Increment and Memory Increment by means of the sliders, then click **Save** to retain the setting changes.
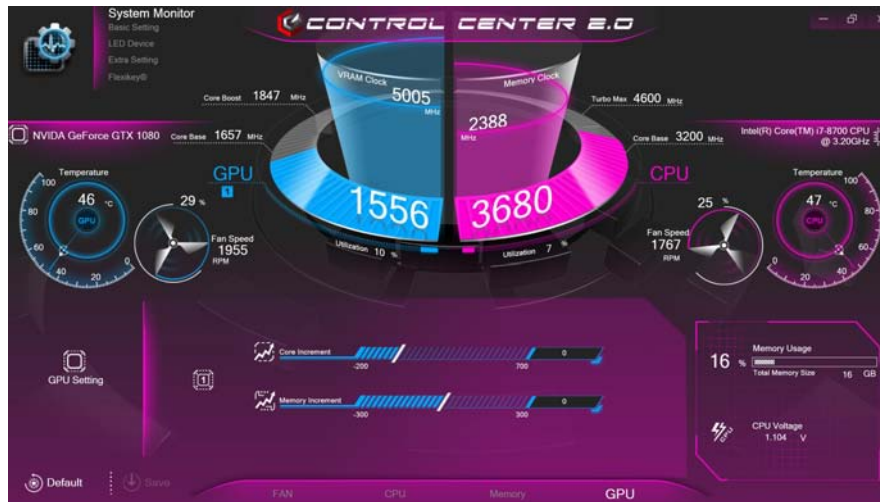

Figure B - 8 - **System Monitor - GPU Settings (Custom)**

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Extra Setting

The **Extra Setting** tab allows you to adjust the app **skin color** to your choice, indicates **Headphone Impedance** for connected headphones and allows access the **FlexiAccess 2.0** application (see over).

Figure B - 9 - **Extra Setting**

FlexiAccess 2.0 Application

If you have an Android or iOS compatible device, you can download the **FlexiAccess 2.0** application to use in conjunction with your overclocked GPU. The application will allow you to adjust the GPU settings as follows:

• From your **Android** compatible device while connected by **WiFi**.
• From your **iOS** compatible device while connected by **WiFi only.**

1. Click **Extra Setting** in the Control Center and click to **turn FlexiAccess ON**.
2. Click on the QR Code icon in **Extra Setting** in the **Control Center,** and scan the **QR Code on your Android/ iOS compatible device** (or click the **QR Code Icon**) to download the FlexiAccess 2.0 App from the Google Play/ Apple store.

Figure B - 10 **- FlexiAccess App QR Code**

3. **The App will then be installed** on your Android/iOS compatible device.

B

FlexiAccess 2.0 - WiFi App

Follow these instructions to connect with the FlexiAccess 2.0 App via Wifi.

1. Make sure both your computer and **Android/iOS compatible device** use the same wireless access point (for the App to work the computer and the device must be connected to the same network).
2. When the computer and Android compatible device are connected to the wireless access point, go to the **Control Center** and click on the **FlexiAccess 2.0** icon to run the App on the computer, and then run the App on the Android/iOS device.
3. The computer may require you to allow access to the computer via the **Windows Firewall**, so click "**Allow access**" when the prompt appears on screen.

Figure B - 11 **- Windows Firewall - Allow access**

4. Enter the **IP Address** shown at the bottom of the Control Center screen into the area provided in the App on your phone (you can click the **Setting Tool** if you want to **change the language interface**).
5. Click on the icon to connect.

Figure B - 12 **- Flexi Access 2.0 - WiFI Connection**

6. As long as the computer and device share the same access point, and you have allowed Firewall access, the system should now connect.
7. The initial screen will display the current status of the GPU.
8. Tap on the **GPU Settings icon** , and then click the **On** button to access the GPU controls.

9. When playing any game or high-end graphic application you can control the GPU overclocking settings using the App on the Android/iOS compatible device.
10. You can then adjust the settings for the game or high-end graphic application in use "on the fly", without having to quit or pause the program.
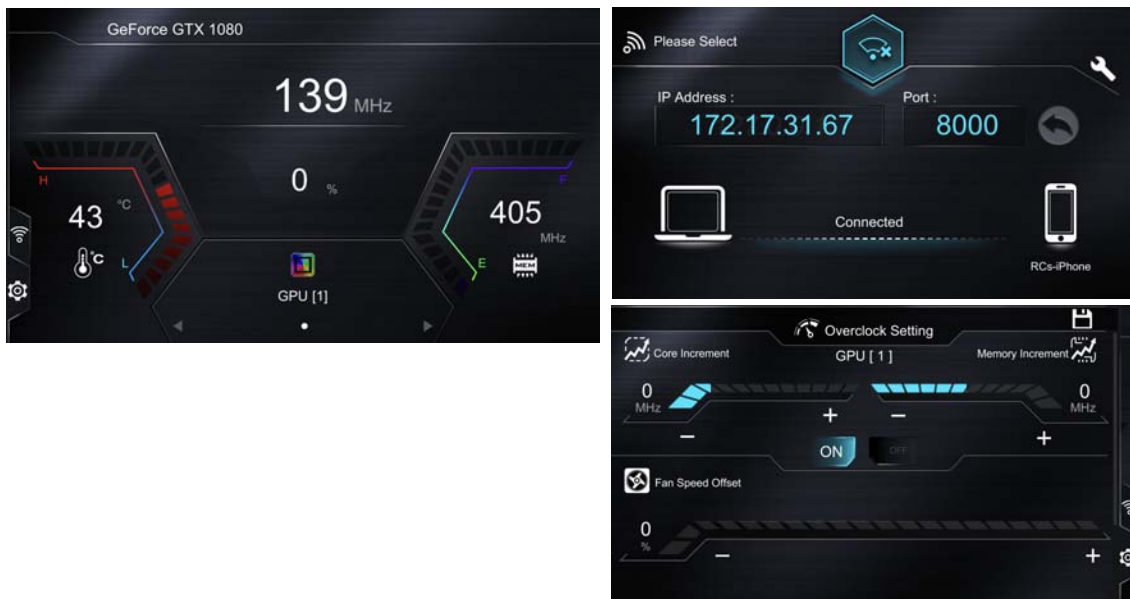
Figure B - 13 **- FlexiAccess 2.0 App**

11. If you need to reconnect click on the 🛜 icon and disconnect, and then reconnect.

Basic Setting

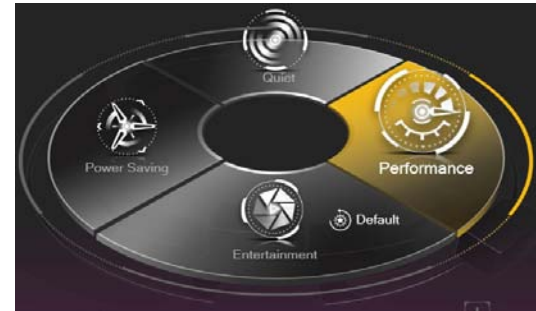The **Basic Setting** allows you to adjust the power mode and other system features.

Figure B - 14 - **Basic Setting & Power Modes**

Power Modes

You can set a **Power Mode** by clicking the appropriate icon in the center of the **Control Center**. Each power mode will affect Airplane Mode and PC camera power.

- In **Power Saving** Mode the **Airplane Mode** will be **ON** and the **PC Camera** will be turned **OFF**.
- In **Quiet Mode** the **Airplane Mode** will be **OFF**.
- In **Performance Mode** and **Entertainment Mode** the **Airplane Mode** will be **OFF**.

- Clicking the **Default** button in **Entertainment** will reset the default settings for this mode.

Control Center

Power Status ⚡ 100% / ▯ 97%

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

The **Brightness**

icon will show the current screen brightness level. You can use the dial to adjust the screen brightness, or you can use the **Fn + F8/F9** key combinations.

PC Camera/Touchpad/Left Windows Key

Click these buttons to toggle the **PC Camera** or **Touchpad** power status, or to turn the **Left Windows Key** functionality on/off. The button under the icon will appear highlighted when it is enabled. Note that the power status of the camera module is also effected by the **Power Mode** selected (see).

Sleep / Hibernate Button

Click either the **Hibernate** or **Sleep** buttons to have the computer enter the selected power-saving mode (you will receive a warning before the system switches to the power-saving mode and will need to click **OK** to confirm).

Volume

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

Caps Lock/Scroll Lock/Number Lock/Airplane Mode

Click the button to toggle the appropriate lock mode and

Airplane Mode. Note that Airplane Mode is not an indicator, and is not intended to display the current status (check the LED indicator), but a toggle and can be overridden by one of the power modes.

B

LED Device Menu

Keyboard Backlight LED Device (for Illuminated Color LED Keyboards)

The **Keyboard Backlight LED Device** application can be accessed by pressing the **Fn** plus ⌨ key (or by clicking **LED Device** in the top left of the Control Center).

Figure B - 15 **- Keyboard LED Device Application (Keyboard All)**

Color Swatch

The color swatch in the middle of the screen allows you to select a range of colors for your keyboard backlight by clicking on the color required. Click to select any colors from the swatch to apply to the keyboard.

Keyboard Sleep Timer

Enable and then select the amount of time the system for which the system is idle before the keyboard LED enters sleep mode (i.e. the LED keyboard illumination will turn off to save power).

Brightness

Click on any of the numbers (**1 - 4**) on the **Brightness** bar to set the brightness level of the LED Device. You can also turn the keyboard backlight LED Device off by clicking the **OFF** button, or by using the **Fn** plus 🔳 key.
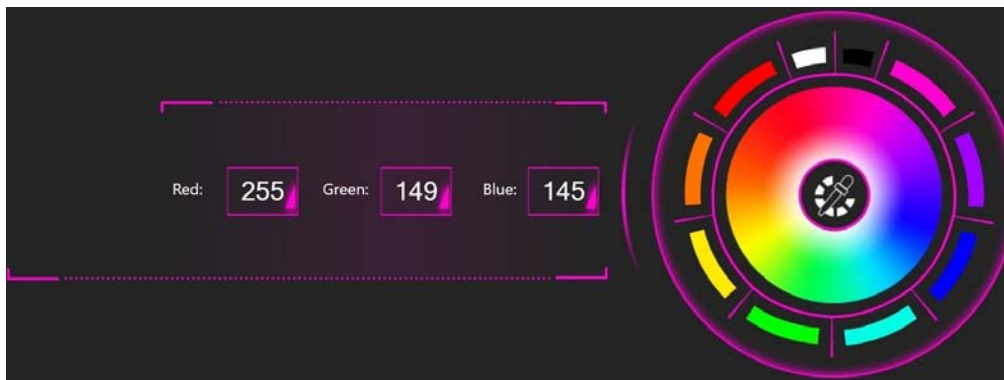

Figure B - 16 **- Keyboard Color Swatch**

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LED Mode - Whole Keyboard/Partial Keyboard (for Illuminated Color LED Keyboards)
Click either of the headings on the left under **LED Mode** (**Whole Keyboard** or **Partial Keyboard**) to select how the colors will be applied.

- **Whole Keyboard** - Simply click a color from the outer band of the swatch, or click one of the color mixes from the center of the swatch and it will be immediately applied to the whole keyboard.

- **Partial Keyboard** - Simply click a color from the outer band of the swatch, or click one of the color mixes from the center of the swatch, and then click one of the keyboard section headings (**Left, Mid** or **Right**) to apply the color.

Figure B - 17 **- LED Mode - Partial Keyboard (Illuminated Color LED Keyboards)**

Keyboard Effects (for Illuminated Color LED Keyboards)

Click on **Keyboard Effect** (under **LED Mode**) and then click any of the Effect buttons to view the effects on the keyboard.

| Wave | Breathe | Cycle | Random | Flash | Dance | Tempo |

Figure B - 18 - **Keyboard Effects (Illuminated Color LED Keyboards)**

Light Bar Logo LED

The color swatch in the middle of the screen allows you to select a range of colors for the Light Bar Logo LED by clicking on the color required. Click to select any colors from the swatch to apply to the Light Bar Logo LED.

Figure B - 19 - **Light Bar Logo**

Flexikey® Application

Click **FlexiKey** in the top left of the **Control Center** to access the **Flexikey®** application. You can use the **Fn + Backspace** key combination to toggle the **Flexikey®** application on and off.

Profiles

The controls at the top right side of the application relate to Profiles. You can **Add/Delete** Profiles (**you can maintain 12 active Profiles**), **Export** and **Import** profiles by clicking on the appropriate icon. If you double-click on a Profile you can change the **Profile Name**, and import an **Image** file (images created using PNG files).
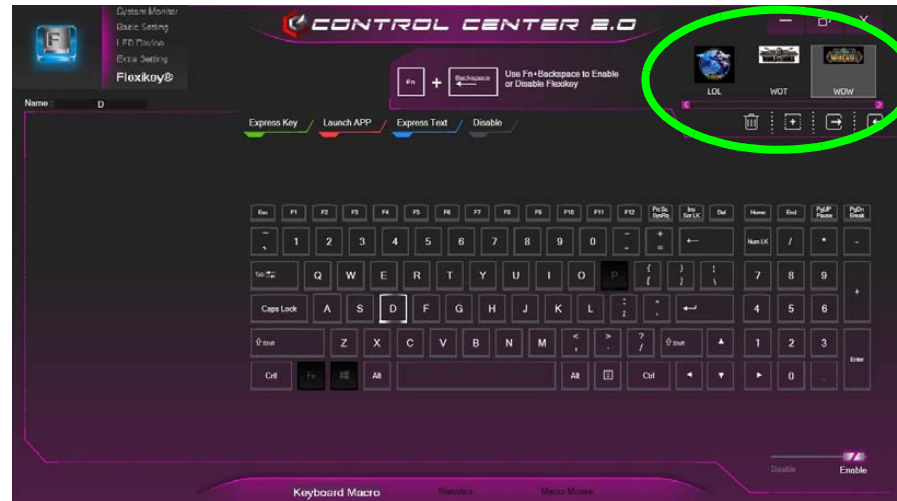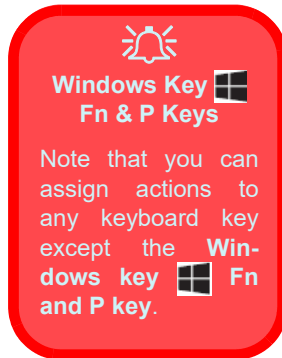

Figure B - 20 **- Flexikey® - Profiles (Macro Keyboard)**

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 Macro and Macro Mouse Settings

Click **Enable** ![Disable/Enable toggle] (at the bottom right of the screen) to create settings for the keyboard and/or mouse by clicking the tab at the bottom of the screen (e.g. you may wish to create a profile with settings only for the mouse or keyboard). Clicking on **Macro Keyboard** or **Macro Mouse** allows you to access the settings page for the either the keyboard or mouse.

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Figure B - 21 **- Macro Keyboard & Macro Mouse Selection**

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. An on screen icon will also pop-up to display the status of the application as it is toggled on/off.

Figure B - 22 **- FlexiKey On Screen 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 top of the page. You can click in **Tool Tips** to type in a note to remind you of the action's function.
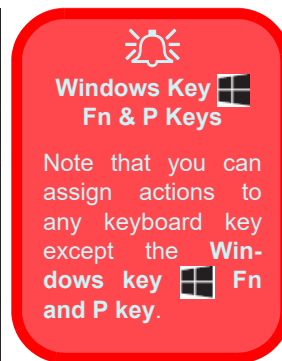

Figure B - 23 - **Macro Keyboard Configuration**

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Windows Key ⊞
Fn & P Keys

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

Mouse Settings

When an external mouse is attached, the mouse settings allow you to configure actions for the left ❶, right ❷ and middle ❸ buttons of the attached mouse, and also for any backward ❹ and forward ❺ 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. You can click in **Tool Tips** to type in a note to remind you of the action's function.
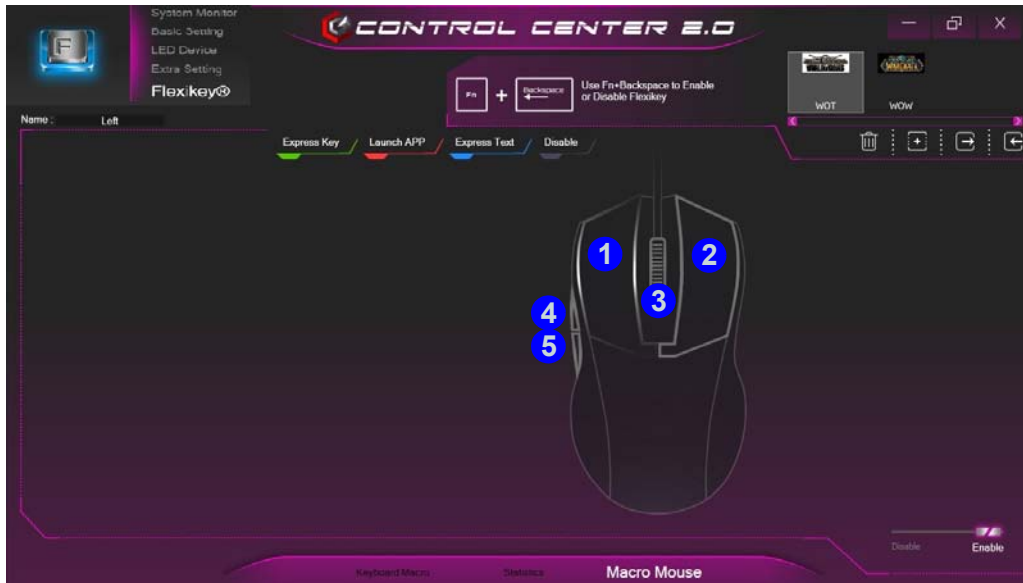

Figure B - 24 **- Macro Mouse Configuration**

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 the chosen key to select it, and then click to select **Express Key**.

Figure B - 25 **- Control Center - Macro Keyboard - Record Express Key**

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 the **Record** button ⬤ 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).
4. Click the **Record** button ⬛ Record again to complete the process and stop recording.
5. Click on the key, and then click in the **Tool Tips** field and type to give the key combination a name e.g. "*Sprint Fwds*".
6. If you want to remove any individual key click to select it, and then click **Restore**.
7. Any assigned **Express Keys** will be highlighted in **green**.

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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.

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Enabling Delay Time

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

1. **Enable** and select the keyboard under your chosen profile, click on the chosen key to select it, and then click to select **Express Key**.
2. Click the **Record** button [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).
3. Click the **Record** button [Record] again to complete the process and stop recording.
4. Click to select a key in the sequence and click **Enable Delay Time** [Enable Delay Time], then click a key to view the time delay.

Figure B - 26 **- Enable Delay Time**

5. 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.

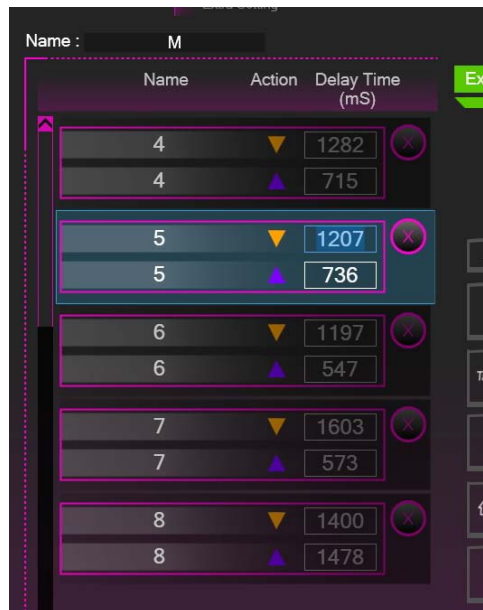*Figure B - 27* **- Time Record Between Key Presses**

6. If you want to remove any individual key click to select it, and then click the delete ⊗ symbol.
7. If you want to clear all the settings click **Restore** to return to the default key setting.

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**.
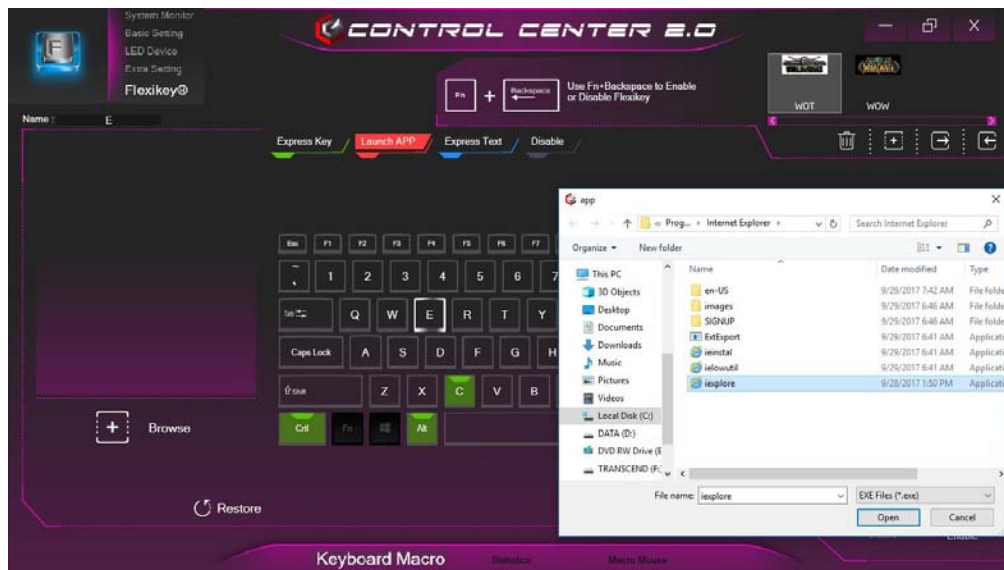2. Click **Browse...** at the bottom left of the application window.

Figure B - 28 **- Macro Keyboard - Launch App (Browse to Executable File)**

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 **red**.

Figure B - 29 **- Macro Keyboard - Key Set to Launch App**

5. If you want to remove any **Launch App Key**, select it and click on **Restore**.

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**.
2. Click in the **Text Context** field and type in your message and click **Save**.
3. Click the **Record** button in **Start** key and press the keys to use 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. Click the **Record** button again to stop the process.

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Figure B - 30 **- Macro Keyboard - Express Text**

4. Click the **Record** button in **Send** and press the keys to use 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. Click the **Record** button again to stop the process.
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**.

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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.

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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**.
2. The key will now be disabled.
3. If you want to enable the key again, select it and click on **Restore**.
4. The key will be disabled under your chosen Profile, and the key will appear in **Gray**.

Figure B - 31 **- Macro 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**.
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 - 32 - **Macro Mouse - Express Key Record Key Combination (Mouse)**

4. Click the **Record** button ⏺ 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).
5. Click the **Record** button ⏹ Record again to complete the process and stop recording.
6. Click on the key, and then click in the **Tool Tips** field and type to give the key combination a name e.g. "*Sprint Fwds*".
7. 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).
8. If you want to remove any mouse setting click to select it, and then click **Restore**.
9. The mouse button for any assigned Express Keys will appear in **green**.

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 Delay Time" on page B - 30*).

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 **Launch App**.
2. Click **Browse...** at the bottom right of the application window.

Figure B - 33 - **Macro 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 **red.**
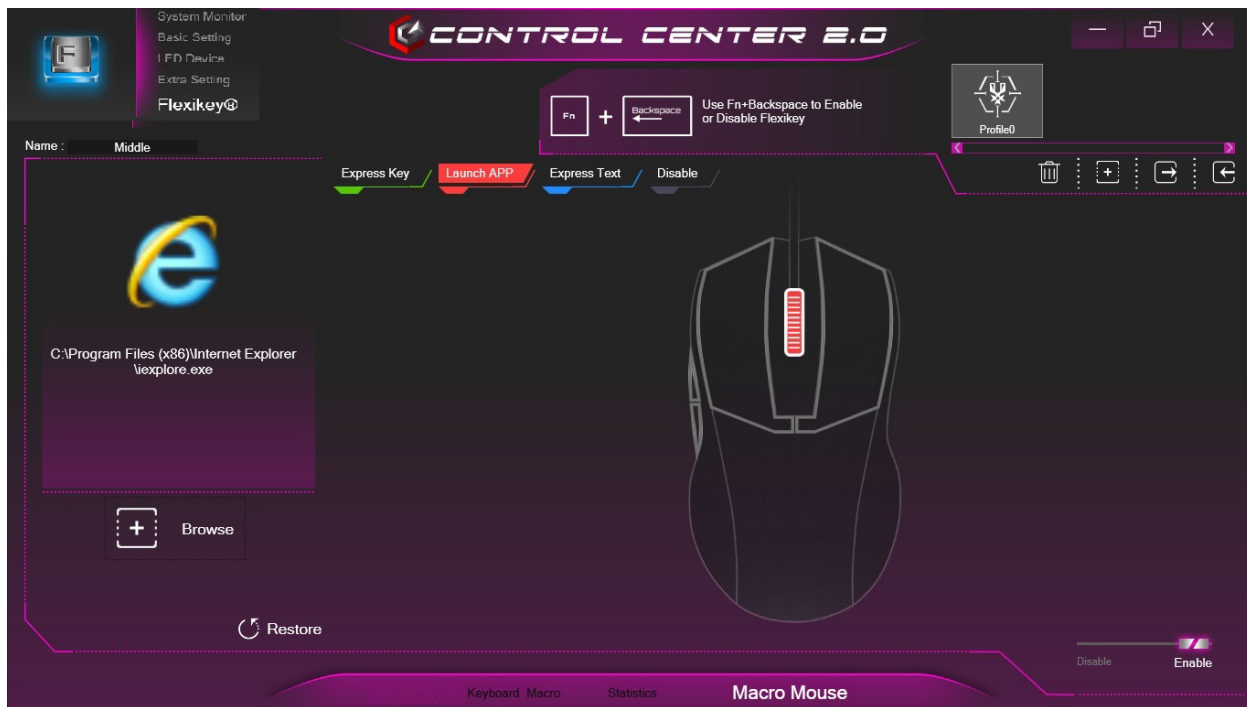

Figure B - 34 - **Macro Mouse - Button Set to Launch App**

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**.
2. Click in the **Text Context** field and type in your message and click **Save**.
3. Click the **Record** button in **Start** key and press the keys to use 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. Click the **Record** button again to stop the process.
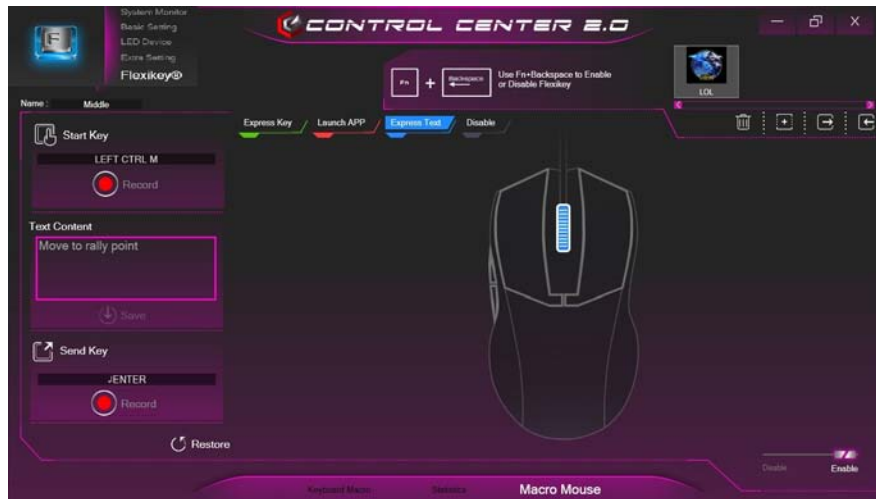

Figure B - 35 **- Macro Mouse - Express Text**

4. Click the **Record** button in **Send** and press the keys to use 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. Click the **Record** button again to stop the process.
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**.

🕭

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.

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**.
2. The button click will now be disabled.
3. If you want to enable the button again, select it and click on **Restore**.
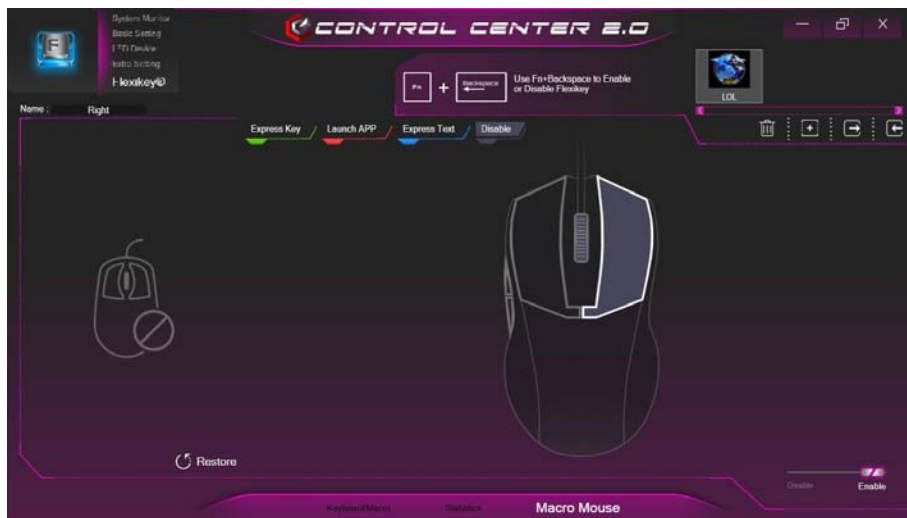4. The button click will be disabled under your chosen Profile, and the key will appear in **Gray**.

Figure B - 36 - **Macro 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 the **Record** button to start recording the frequency of key presses for keys used.
2. You can then go to the application for which you wish to use the profile, and use the application as per normal so that a standard set of keys used may be recorded.
3. Return to the Flexikey® application and press **Record** button again to stop recording.
4. At the end of the recording process colors will represent the frequency of key presses, with the darker keys as the most frequent through to lighter the less frequent (the color dial on the left of the screen displays the color code against the number of key presses).
5. You can move the mouse over any key to see the number of times it has been pressed.
6. If you want to disable a key click **Quick Disable** and click the keys you wish to disable (the key will become grayed out) and then click **Save** to retain the settings.

Figure B - 37 - **Statistics**

Appendix C: NVIDIA Video Driver Controls

The basic settings for configuring the LCD are outlined in *"Video Features" on page 1 - 38*.

NVIDIA Video Driver Installation

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

1. Insert the *Device Drivers & Utilities + User's Manual* disc and click *Install Drivers* (button).
2. Click **2.Install VGA Driver > Yes**.
3. Click **AGREE AND CONTINUE (**button) to accept the terms of the license agreement.
4. Click **Next.**
5. Click the **Close** button to complete the installation.
6. After all the drivers have been installed (an internet connection is required) run the **NVIDIA GeForce Experience** by clicking the desktop icon 🖳 (or App).
7. **Restart the computer and run the application again after restart**.

🖉

Video Card Options

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.

C

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.

C

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 ⊞ **+ 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.

🖉

NVIDIA Control Panel

If you have connected 2 or 3 external displays configured in **Clone** mode, you must use the NVIDIA control panel to configure the displays.

In this case do not use the Windows Key + P key (Project) combination as this does not affect the changes made by the NVIDIA control panel.
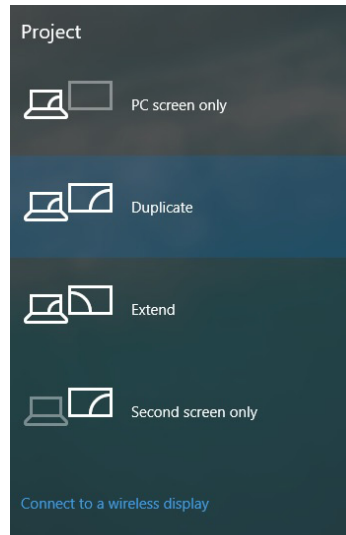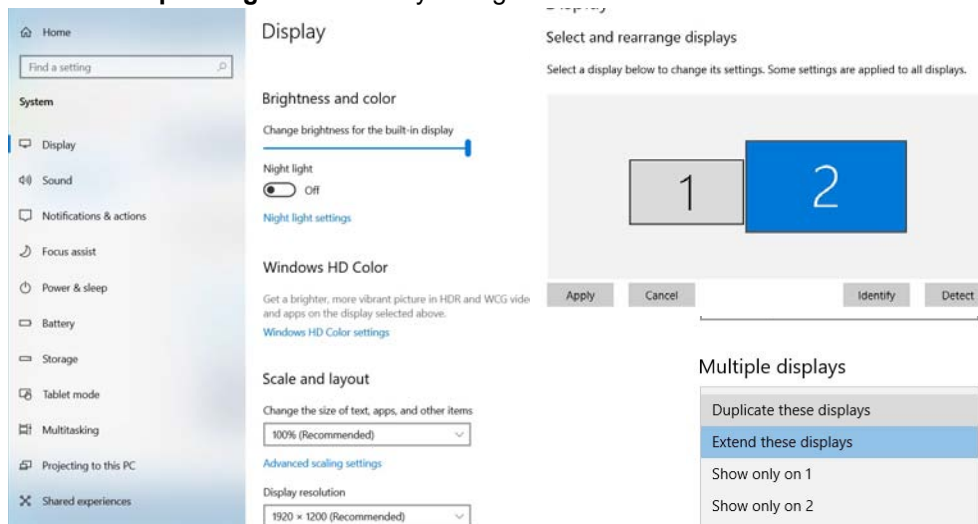

Figure C - 1
Project

C

Configuring an External Display In Windows

The **System > Display** 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. Click the **Multiple Displays** menu and select **Duplicate these displays**, **Extend these displays** or **Show only on 1/2**.
4. Click **Keep changes** to save any changes made.

*Figure C - 2*

System > Display (Multiple Displays)

Audio Setup for HDMI

In some cases it will be necessary to go to the Sound control panel and manually configure the HDMI audio output.

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.
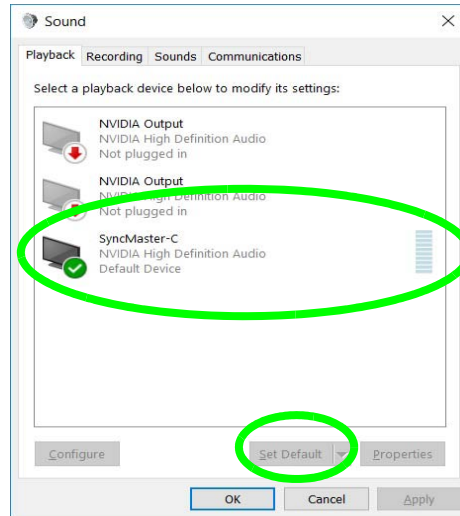
🖉

Volume Adjustment

The sound volume level can be clicking using the volume control icon in the *notification area of the taskbar*.
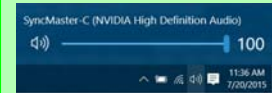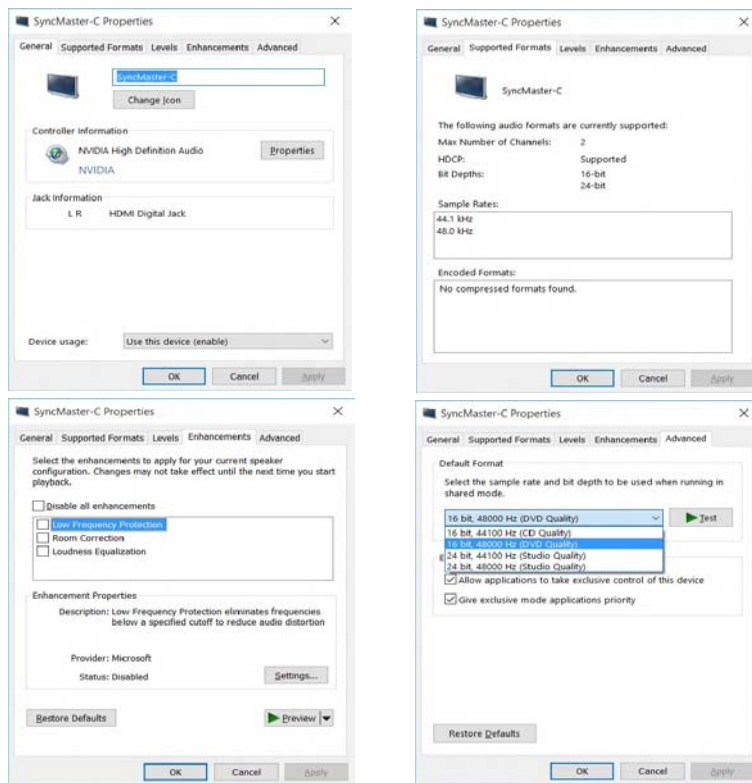
Figure C - 3

Sound - HDMI Device (set Default)

C

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

Figure C - 4
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.
- Under certain conditions, if the HDMI cable is disconnected, the default audio playback device will not revert to speakers until the computer is restarted (if you do not wish to restart the computer then go to the **Sound** control panel and select **Speakers** as the default audio playback device).

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 *"Configuring an External Display (NVIDIA)" on page C - 16*.
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.

Sound Blaster Audio & HDMI/Display Port

1. When you connect a display to the HDMI-Out port, or Display Port the Sound Blaster Cinema controls will be disabled.
2. A warning box will pop-up and will prompt *"...Do you want to select another audio device now?"*.
3. Click **No** to continue using the audio output from your external display attached to the HDMI-Out port, or Display Port (do not attempt to select another audio device when connected to the external display).

> ✐
>
> **Other Applications**
>
> If you are using a third party application to play DVDs etc. you will need to consult the application's documentation to see the appropriate audio configuration (the application must support digital to analog translation).

C

> ✎
>
> **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 ⊞ **+ 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.
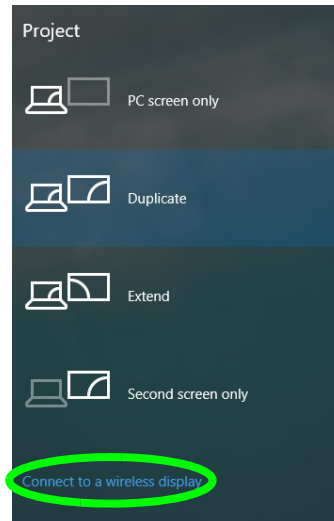
Figure C - 5
Add a Wireless Display

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.

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**.

<div style="border: red">

☒

AC/AD WLAN Module - Connect to a Wireless Display

When an AC/AD WLAN module is installed you may find that the "Connect to a wireless display" item at the bottom of the Project screen does not appear. In this case you will need to disable one of the wireless adapter items as follows:

1. Right-click the Wireless icon 📶 in the notification area of the taskbar.
2. Select "**Open Network and Sharing Center**."
2. Click "**Change adapter settings**" in the menu on the left.
3. Right-click WiFi# - **Qualcomm Atheros Sparrow 11ad Wireless Network Adapter**.
4. Select **Disable** to turn off this adapter.
5. Return to the **Project** menu and click "**Connect to a wireless display**."

</div>

NVIDIA Control Panel

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

1. Access the **NVIDIA Control Panel** from the **Start** menu in **Windows** (or right-click the desktop and select **NVIDIA Control Panel**).
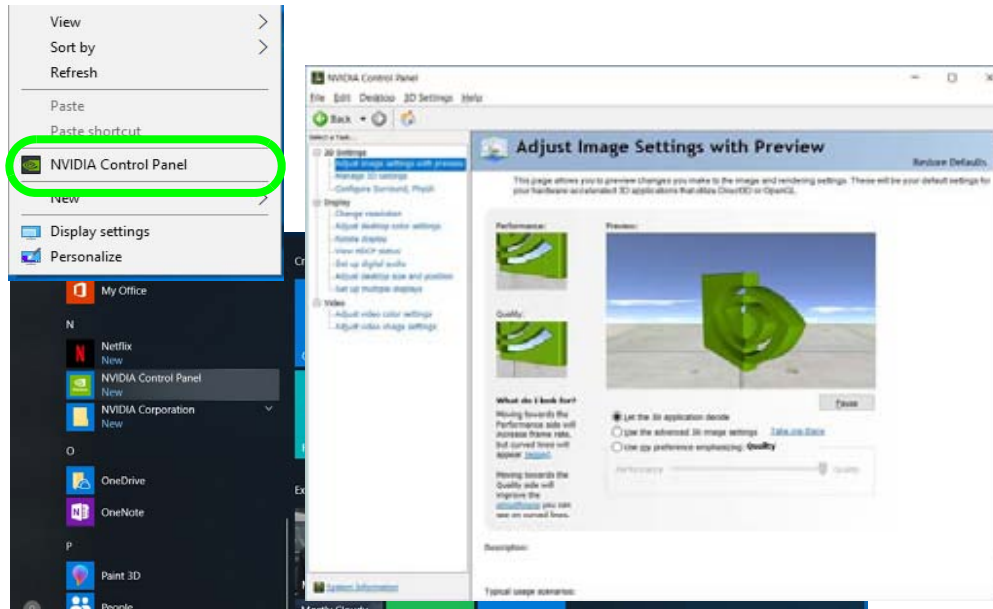
Figure C - 6

NVIDIA Control Panel

C

NVIDIA Video Driver Controls

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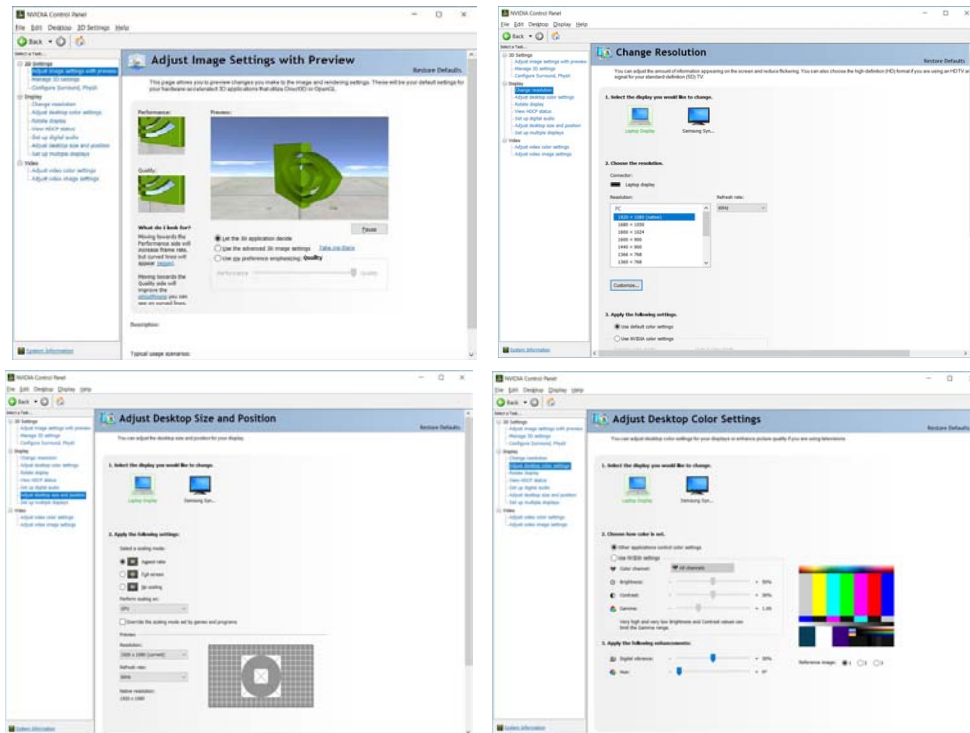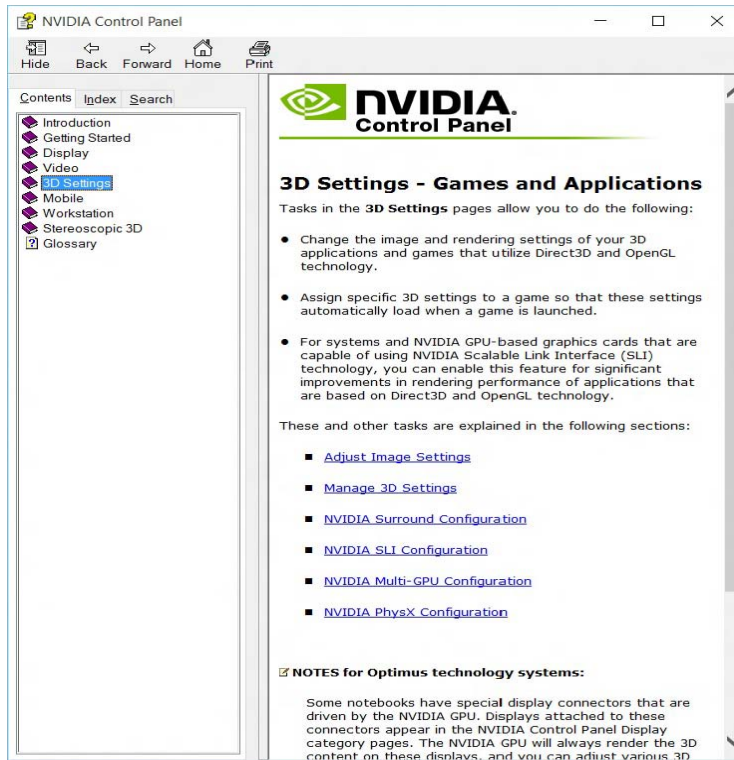

Figure C - 7
NVIDIA Control Panels

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

Figure C - 8
Help Menu

C

Change Resolution

You can **Change Resolution** for your attached displays from the NVIDIA control panel.

1. Attach your external display to the appropriate port, and turn it on.
2. Go to **NVIDIA Control Panel** (see page *C - 11*).
3. Double-click **Display** (if the sub-menus are not visible)**,** and then click **Change resolution**.
4. Click to select the display, and then adjust the settings from "**2.Choose the resolution.**" and "**3.Apply the following settings.**"
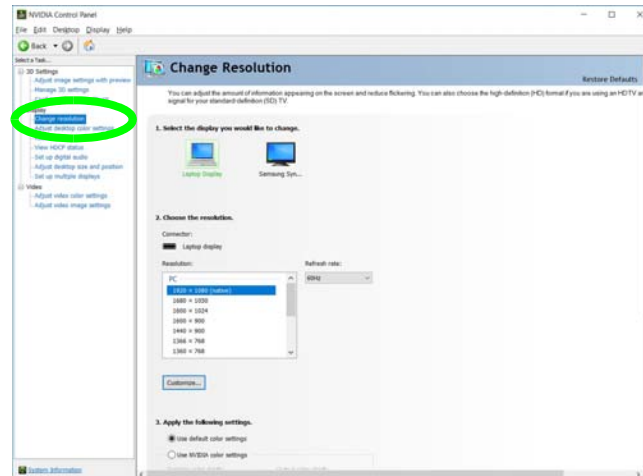5. Click **Apply** to save the settings.

Figure C - 9

Change Resolution

C

Display Devices

Note that you can use an HDMI (High-Definition Multimedia Interface) cable connected to the HDMI-Out port and/or DisplayPort compatible cable connected to a DisplayPort to connect an external display. You can also use the Thunderbolt Port connected to a compatible display device (see below). See your external display device's manual to see which formats it supports.

> ☼
>
> **Thunderbolt Support**
>
> If you want to use the Thunderbolt port to support display devices then you will need to set it up in the BIOS (see *"DDI Control (Advanced Menu > Advanced Chipset Control)" on page 5 - 10*). **When the Thunderbolt port is set to be used for display only, then DisplayPort 2** (**6** in *Figure 1 - 12 on page 1 - 21*) **will be disabled**. You can also set the level of security for the Thunderbolt port in the BIOS.

🖉

Sound Blaster Audio & HDMI Connection

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

Table C - 1
Display Modes

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

C

Figure C - 10
Set Up Multiple Displays

Configuring an External Display (NVIDIA)

Clone the Displays
1. Attach your external display to the appropriate port, and turn it on.
2. Go to **NVIDIA Control Panel** (see page *C - 11*).
3. Double-click **Display** (if the sub-menus are not visible)**,** and then click **Set up multiple displays**.
4. Any attached display will appear under "**1.Select the displays you want to use.**"
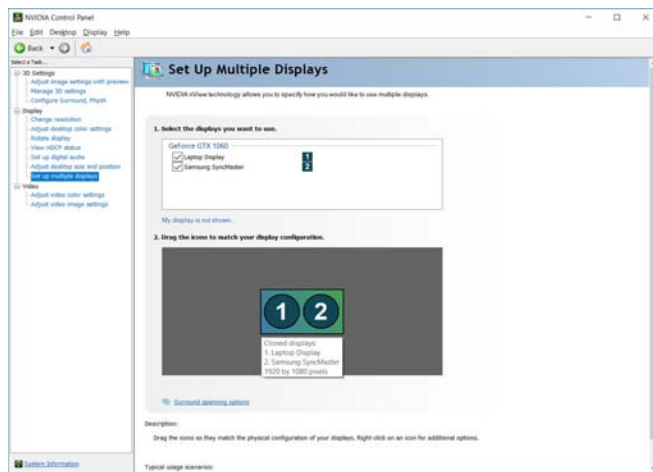
5. Click the check box alongside any display you wish to use.
6. Click **Apply > Yes** to save any changes made (the **Apply** button will appear in the bottom right of the control panel when changes have been made).

Extending the Display

1. Attach your external display to the appropriate port, and turn it on.
2. Go to **NVIDIA Control Panel** (see page *C - 11*).
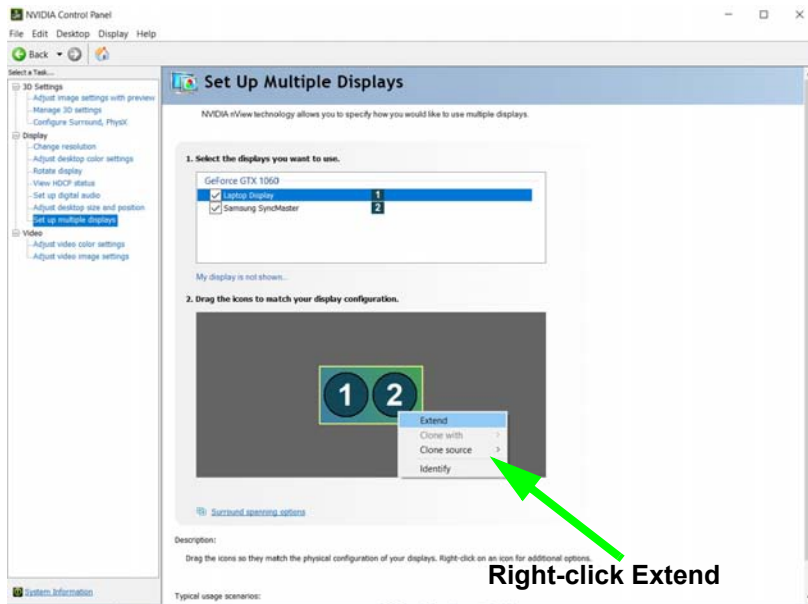3. Double-click **Display** (if the sub-menus are not visible)**,** and then click **Set up multiple displays**.
4. Click to select a primary display under *"1.Select the displays you want to use."*
5. Right-click the icons under "2.**Drag the icons to match....**" and select **Extend**.

Right-click Extend

🖉

Changing the Primary Display on Extended Displays

If you want to switch the primary display if the displays are extended then right-click the secondary display icon and select "**Make Primary**". **Click Apply > Yes** to save the change (see over).

Figure C - 11
Extend the Display

C

6. The Primary display (the main window display) will be denoted by an **asterisk *** in the top right corner of the icon.
7. To change the Primary display **right-click the icon** and select **Make primary**.
8. Click **Apply > Yes** to save any changes.

Figure C - 12
Switch Primary Display
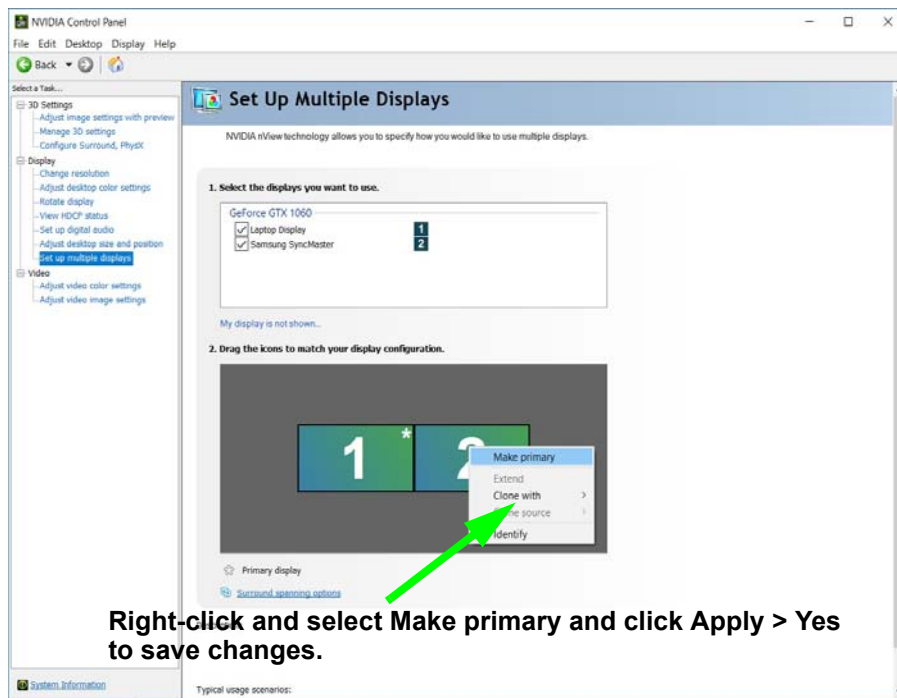
Right-click and select Make primary and click Apply > Yes to save changes.

9. You can drag the icons to match the desktop layout you want to use (e.g. you may want to extend the display to the right or left of the primary display).
10. Click **Apply > Yes** to save any further changes.
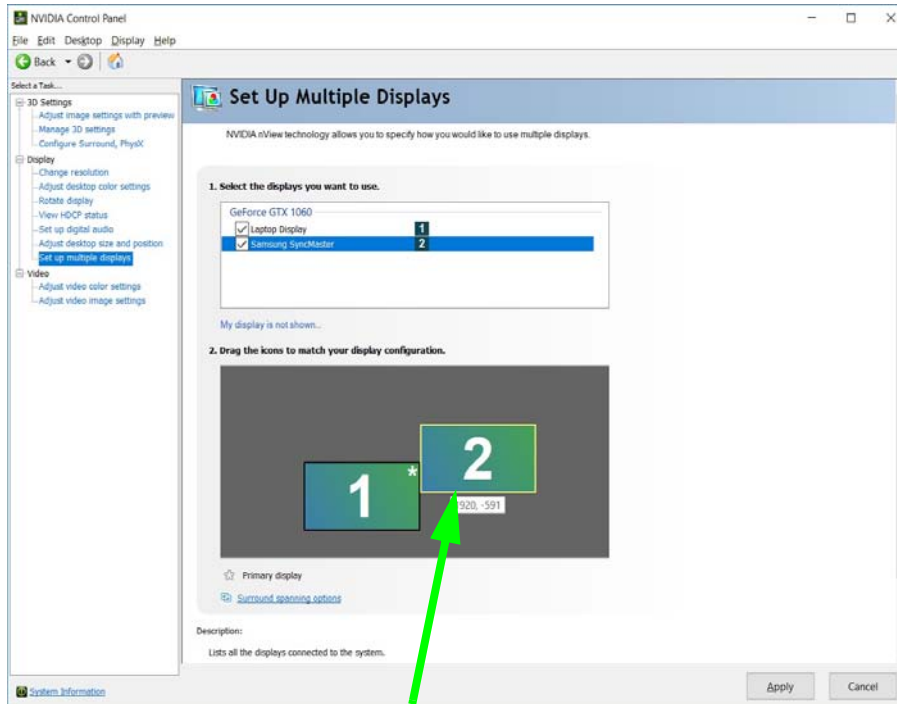
Figure C - 13
Drag Display Icons

Drag the display icons to match the layout you want to use.

Multiple Display Connections to HDMI-Out Port/DisplayPorts/Thunderbolt Port

Note that certain **NVIDIA** video cards **can support up to three external displays** (one attached to the HDMI-Out Port and two others attached to the Display Ports/Thunderbolt Port), in addition to the built-in LCD.

Therefore it is possible to set up 4 simultaneous displays (including the built-in LCD), and these may be configured in **Clone** mode or **Extend** mode as required. Connect all the attached displays to the appropriate ports, and configure them as outlined on the previous pages.

C

Multiple External Display Notes

Note the following when connecting multiple displays to your system.

*   If you have connected 3 external displays (for a total of 4 displays including the built-in LCD panel), **2 displays** will be in **Clone mode**, and the other **2 displays** will be in **Extended mode** by default.

*   If the system is configured in **Clone Mode**, and you have connected 3 external displays (for a total of 4 displays including the built-in LCD panel), the **NVIDIA control panel will show all the displays supporting the highest resolution of the attached displays** (e.g. if two of the displays support a resolution of 1920 * 1080, and the other supports a resolution of 1920 * 1200, then the control panel will show all the displays as 1920 * 1200). This is just a case of the control panel defaulting to the highest resolution, however the actual resolution for each display will only be what it can really support.

*   If you have **connected 2 or 3 external displays** configured in **Clone mode**, you must **use the NVIDIA control panel to configure the displays**. In this case do not use the Windows Key + P key (Project) combination as this does not affect the changes made by the NVIDIA control panel.

C

Manage 3D Settings

You can configure the 3D **global settings** (to be applied to all application programs) or make specific adjustments for installed **program settings**.

1. Go to **NVIDIA Control Panel** (see page *C - 11*).
2. Click **Manage 3D Settings** and select either **Global Settings** or **Program Settings**.
3. Click the **Setting** menu items to select any global options required, or **select a program to customize** from the drop-down menu (click **Add** to add any program that does not appear in the menu).
4. Click **Apply** to save the settings.

Figure C - 14

Manage 3D Settings

C

HDCP Status

If your external display is HDCP (High Bandwith Digital Content protection) compatible then the NVIDIA control panel will display the HDCP system status.
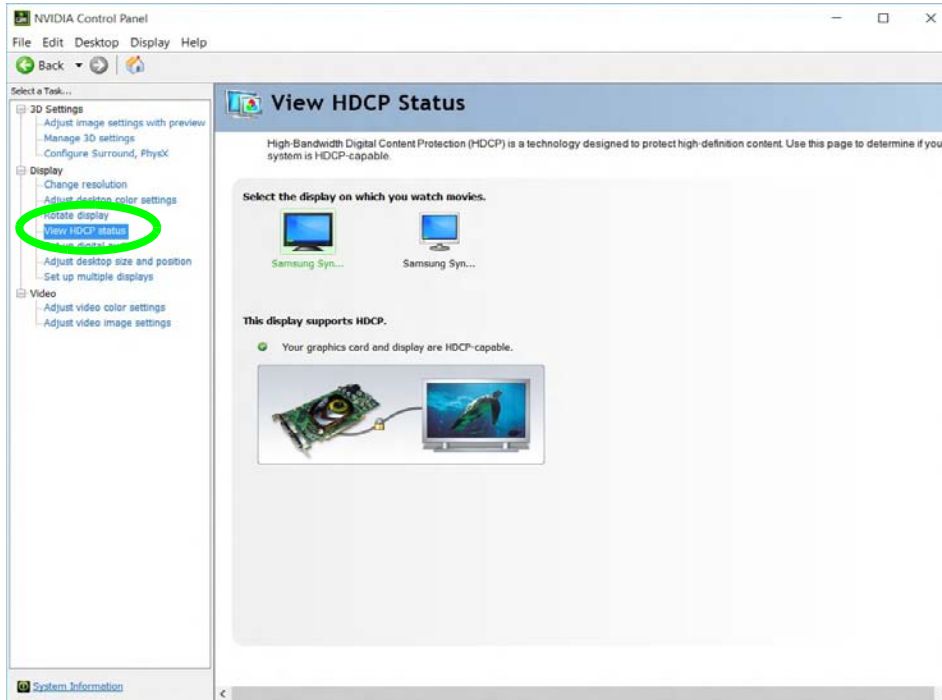

Figure C - 15
HDCP Status

C

Adjust Video Settings

You can adjust video color and image settings from the **Video** sub-menus.

1. Go to **NVIDIA Control Panel** (see page).
2. Click "**+**" next to **Video** if its sub-items are not shown and then click either **Adjust video color settings** or **Adjust video image settings**.
3. Make any adjustments required for any display and click **Apply** to save the settings.

Figure C - 16

Adjust Video Color Settings

C
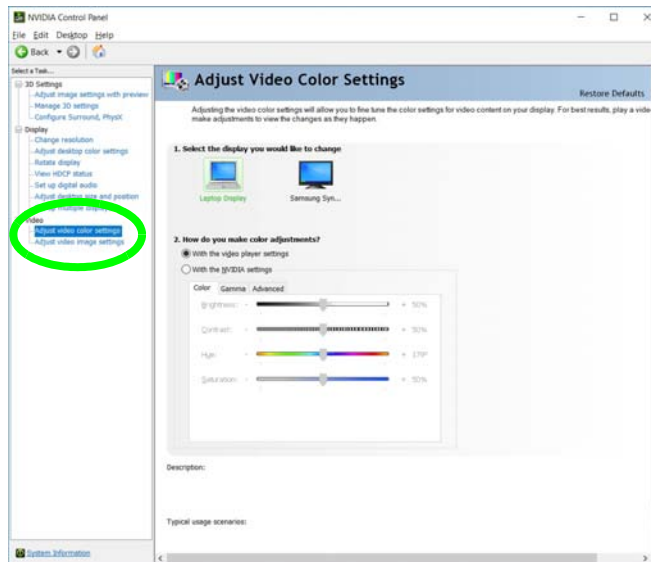
G-SYNC

Click to put a check in the box to **Enable G-SYNC** (it is enabled by default). G-SYNC is designed to provide a smooth game play experience from your GeForce product by synchronizing the monitor's refresh cycle to the GPU's render rate, thus removing lag and stutter issues, in order to have objects appear sharper and scenes display instantly.

🖉
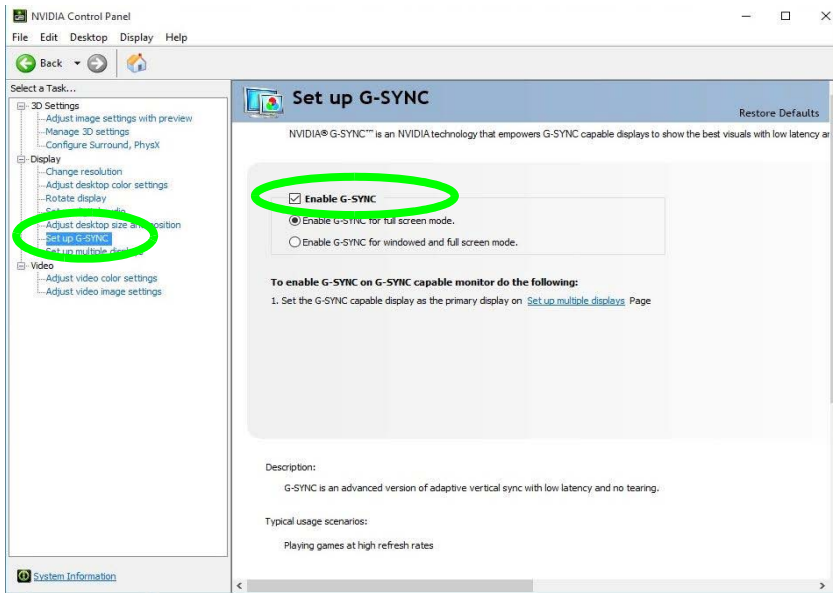
G-SYNC Support

NVIDIA® G-SYNC™ Technology (supported by some LCD panels and GTX series video adapters only).

G-SYNC is only supported if you have a G-SYNC capable display and a GTX series video adapter (contact your distributor or supplier for details).

Figure C - 17
Set Up G-SYNC

C

Setting up G-SYNC

1. Go to **NVIDIA Control Panel** (see page *C - 11*).
2. Click "**+**" next to **Display** if its sub-items are not shown and then click **Set up G-SYNC** (you must have a a G-SYNC capable display and video adapter).
3. Click **Enable G-Sync** (you can select for ...full screen mode or ..for windowed and full screen mode).
4. Click "**+**" next to **Display** if its sub-items are not shown and then click **Set up multiple displays,** and set the G-SYNC capable display as the **Primary Display** in the configuration.
5. Click "**+**" next to **3D Settings** if its sub-items are not shown and then click **Manage 3D Settings**.
6. Click **Global Settings**, select **Vertical sync** and then select **G-SYNC.** Setting G-SYNC in global settings means it will be applied to all games. If you want to test the effect you can select the "**Program settings**" tab and disable G-SYNC for a specific game.

Figure C - 18
3D Settings > Global Settings > Vertical sync

C
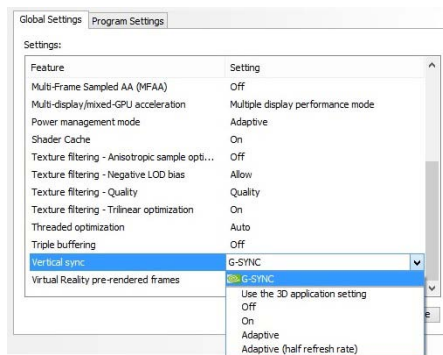
HDMI Audio Configuration

As HDMI (High-Definition Multimedia Interface) carries both **audio** and video signals you can configure the audio output from the **NVIDIA control panel** and **Sound** control panel. The settings will depend upon the external HDMI display you have connected to.

Connected displays will appear alongside the appropriate port. Click *"Open Windows Sound Settings"* (button) to access the **Sound** control panel.
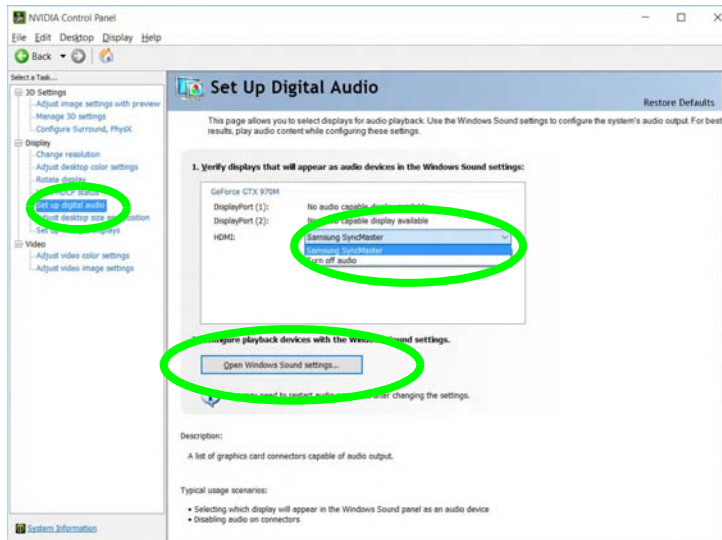

Figure C - 19
Set up Digital Audio

C

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.**

D

Specifications

Note

🔔
CPU Speed & Computer in DC Mode

Note that when the computer is in DC mode (powered by the battery only) the CPU may not run at full speed. This is a design feature implemented in order to protect the battery.

Core Logic

Intel® Z370 Express Chipset

Display

Models A & B:
15.6" (39.62cm) UHD (3840 * 2160) / FHD (1920 * 1080), 3.2mm, 16:9 Backlit Panel

Models C & D:
17.3" (43.94cm) FHD (1920 * 1080) / *QHD (2560 * 1440) / *UHD (3840 * 2160), 4.0mm, 16:9 Backlit Panel

*Note: QHD/UHD panels are available for systems with NVIDIA® G-SYNC™ Technology only

Memory

Dual Channel **DDR4**

Four 260 Pin SO-DIMM Sockets Supporting **DDR4 2400** MHz Memory Modules (*real operational frequency depends on the FSB of the processor*)

Memory Expandable from **8GB** (minimum) up to **64GB** (maximum) Compatible with 4GB/8GB/16GB Modules

Supports XMP 2400/2666/3000 MHz (XMP support depends on the processor and works with **four** DIMMS Dual Channel OR **two** DIMMS Single Channel)

Channel A = RAM 1 & RAM 3 slots
Channel B = RAM 2 & RAM 4 slots
(*Check with your distributor/supplier for RAM installation details*)

🔔
SO-DIMM Memory Types

All SO-DIMM memory modules installed in the system should be identical (the same size and brand) in order to prevent unexpected system behavior.
Do not mix SO-DIMM memory module sizes and brands otherwise unexpected system problems may occur.

Storage

Two Changeable 2.5" 7mm/9.5mm (h) Hard Disk Drives (HDD) / Solid State Drives (SSD) with SATA Interface (RAID 0/1)

Two M.2 2280 SSDs with SATA **/** PCIe Gen3x4 Interface (RAID 0/1) (**Factory Option**)

BIOS

One 64Mb SPI Flash ROM
AMI BIOS

Audio

High Definition Audio
S/PDIF Digital Output
Built-In Array Microphone
2 Built-In 2W Speakers
Sound Blaster® X-Pro Gaming 360°
ESS™ SABRE HIFI DAC for high resolution headphone audio
External 7.1CH Audio Output Supported By 2-In-1 Audio, Microphone, Line-In & Line-Out Jacks
For Models C & D Only:
One Built-in Subwoofer Speaker

Keyboard & Pointing Device

Full Size Color Illuminated Keyboard with Numeric Keypad & Anti-Ghost Keys
Built-In Secure Pad with Microsoft PTP Multi Gesture & Scrolling Functionality
W/A/S/D Game Keys

Indicators

LED Indicators - Power/Suspend, Battery, HDD, Airplane Mode, Num Lock, Caps Lock, Scroll Lock, Camera

Interface

One USB 3,1 Gen 2 Port (Type C)
One USB 3.1 Gen 2 Port (Type C) / Thunderbolt™ 3 Combo Port - (*Note Thunderbolt output requires BIOS setting*)
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*Note: The maximum amount of current supplied by USB Type-C ports is 500 mA for USB2.0/900 mA for USB 3.1
==============================
Two Mini Display Ports 1.3 (*Note one DP port will be disabled if Thunderbolt enabled)*
One HDMI™ (High-Definition Multimedia Interface) Out Port (with HDCP)
One Microphone-In Jack

One 2-In-1 Audio Jack - (Headphone /S/PDIF Optical Output)
One Line-In Jack
One Line-Out Jack
One RJ-45 LAN Jack
One DC-In Jack

For Models A & B Only:
One USB 2.0 Port
Three USB 3.0 Ports (USB 3.1 Gen 1 - incl *AC/DC powered USB3.0* Port)

For Models C & D Only:
Four USB 3.0 Ports (USB 3.1 Gen 1 - incl *AC/DC powered USB3.0* Port)

Card Reader

Embedded Multi-In-1 Push-Push Card Reader
- MMC / RSMMC
- SD/ Mini SD / SDHC / SDXC (up to UHS-II)
Card Reader Note: Some cards require adapters usually supplied with the cards.

Card Slots

Four M.2 Slots for **Models A & B**
OR
Three:M.2 Slots for **Models C & D**

Slot 1: for M.2 2230 WLAN Combo Module Card with PCIe * 2 & USB Interfaces (A Key)

Slot 2: for M.2 2280 **SSD** Card with SATA/PCIe Gen3x4 Interface (M Key)

Slot 3: for M.2 2280 **SSD** Card with SATA/PCIe Gen3x4 Interface (M Key)
======================================
(For Models A & B Only):
LTE or UTMS/HSPA+ M.2 3042 **3G or 4G Module** Card with USB Interface (B Key)
Note: LTE-1 / 802.11AD Antenna (**Factory Option**) - *LTE cannot coexist with 802.11AD*

Specifications

Communication

Built-In 10/100/1000Mb Base-TX Ethernet LAN

2.0M FHD PC Video Camera Module

Intel® Dual Band Wireless-AC 8265 (2*2 802.11 a/c) M.2 WLAN + Bluetooth Combo M.2 2230 Module (**Factory Option**)

Killer™ Wireless-**AC 1535** Dual Band (2*2 802.11 ac) WLAN + Bluetooth Combo M.2 2230 Module (**Factory Option**)

Killer™ Wireless-**AC 1550** Dual Band (2*2 802.11 ac) WLAN + Bluetooth M.2 2230 Module (**Factory Option**)

Wireless LAN 802.11AD + Bluetooth 4.1 +LE Combo M.2 2230 Card Module (**Factory Option**)

Intel® Wi-Fi 6 AX-200 (2*2 802.11 ax) WLAN + Bluetooth M.2 2230 Module (**Factory Option**)

Killer™ Wi-Fi 6 AX-1650x (2*2 802.11 ax) WLAN + Bluetooth M.2 2230 Module (**Factory Option**)

For Models A & B Only:

3G UTMS/HSPA+ M.2 3042 Card Module (**Factory Option**) **OR**

4G LTE M.2 3042 Card Module (**Factory Option**)

Operating System

Windows® 10 (64-bit)

Features (Depending on Model Type)

Shipping Mode
FlexiCharger
Virtual Reality Ready (*i5 & i7 Processors only*)
Supports Windows® 10 Cortana with Voice
Killer DoubleShot™ Pro with Killer™ Wireless-AC 1535 Module
USB Drive (**Factory Option**)
Intel® Optane™ Technology
(**For Designs with G-SYNC**)
NVIDIA® G-SYNC™ Technology (supported by some LCD panels and GTX series video adapters only)

Security

Security (Kensington® Type) Lock Slot
BIOS Password

Area Fingerprint Reader Module
Trusted Platform Module 2.0
Intel® PTT for Systems without TPM Hardware

Power Management

ACPI 6.0
Supports Wake on LAN
Supports Wake on USB (*Except USB 3.1 Gen 2 Port (Type C) / Thunderbolt™ 3 Combo Port*)
Supports Wake on RTC Alarm (AC Mode Only)

Power

Removable 8 Cell Smart Lithium Ion Battery Pack 82WH

Models A & C:
Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19.5V, 11.8A (**230 Watts**)

Models B & D:
Full Range AC/DC Adapter – AC in 100 - 240V, 50 - 60Hz DC Output 19.5V, 16.9A (**330 Watts**)

D

Environmental Spec

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

Physical Dimensions & Weight

Models A & B:
386mm (w) * 262mm (d) * 38mm(h)
3.4kg *Barebone System with VGA Card & Battery

Models C & D:
418mm (w) * 295.3mm (d) * 40.9mm(h)

For Systems with FHD Panel:
3.9kg *Barebone System with VGA Card & Battery

For Systems with UHD Panel:
4.3kg *Barebone System with VGA Card & Battery

*A barebone system does not include the CPU, VGA, HDD, RAM, adapter, power cord and factory option modules (weight tolerance within +/- 5%).

D

Specifications