USER'S MANUAL

SKIKK Alfheim 16 Ultra

notebook

V24.1.00

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HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

RE Directive

This device follows the technical standards as shown in the measurement report and was tested according to the measurement procedures in RE Directive 2014/53/EU. And our laboratories are accredited, and approved, according to ISO/IEC 17025, and this device has passed the test per this.

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 RE Directive 2014/53/EU 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 powered by the following AC/DC adapter, supplied with this computer model, in accordance with the model's power requirements::

- Type C AC/DC Adapter - AC Input 100 - 240V, 50 - 60Hz, DC Output 19V, 4.74A (**90W**) minimum.

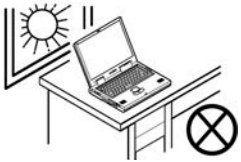
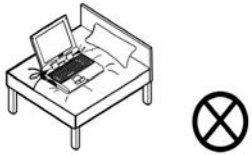
Instructions for Care and Operation

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

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

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.

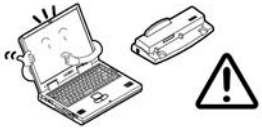
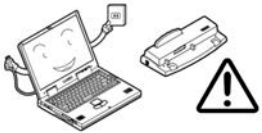
Do not expose it to excessive heat or direct sunlight. 	*Do not leave it in a place where foreign matter or moisture may affect the system.*	*Don't use or store the computer in a humid environment.*	*Do not place the computer on any surface that will block the Vents/Fan Intakes.* 

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

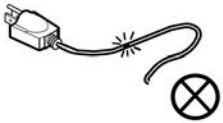
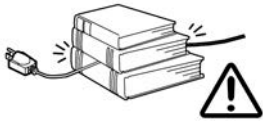
The computer has specific power requirements:

Power Safety Warning

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

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

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

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

Polymer/Lithium-Ion Battery Precautions

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

- Polymer/Lithium-Ion batteries may experience a slight expansion or swelling, however this is part of the battery's safety mechanism and is not a cause for concern.
- Use proper handling procedures when using Polymer/Lithium-Ion batteries. Do not use Polymer/Lithium-Ion batteries in high ambient temperature environments, and do not store unused batteries for extended periods.
- If you are working in areas of low temperature use the AC/DC adapter to power the computer.

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

General Battery Precautions

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

Battery Disposal & Caution

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

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

Cleaning

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

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.

CMOS Battery Warning	
• **Ingestion hazard**: This product contains a button cell or coin battery. • **Death** or serious injury can occur if ingested. • A swallowed button cell or coin battery can cause **internal chemical burns** in as little as **2 hours**. • **Keep** new and used batteries **out of reach of children**. • **Seek immediate medical attention** if a battery is suspected to have been swallowed to inserted inside any part of the body.	

- Remove or immediately recycle or dispose of used batteries, batteries from equipment not used for an extended period of time according to local regulations and keep away from children. Do NOT dispose of batteries in household trash or incinerate.
- Even used batteries may cause severe injury or death.
- Call a local poison control center for treatment information.
- The compatible battery type is CR2032.
- The nominal battery voltage is 3V.
- Non-rechargeable batteries are not to be recharged.
- Do not force discharge, recharge, disassemble, incinerate or heat above the manufacturer's specified temperature rating. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
- The product contains non-replaceable batteries.

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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** (**SSD** and **Micro SD card reader**), **TouchPad** & **Mouse** & **Audio**.
- **Chapter 3** The computer's **power** saving options.
- **Chapter 4** The installation of the **drivers** and utilities essential to the operation or improvement of some of the computer's subsystems.
- **Chapter 5** An outline of the computer's built-in software or **BIOS** (Basic Input Output System).
- **Chapter 6** A quick guide to the computer's **PC Camera**, **Wireless LAN**, **Combo Bluetooth & WLAN** 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 **Video driver controls**.
- **Appendix C** The computer's **specification**.

Advanced Users

If you are an advanced user you may skip over most of this Quick Start Guide. However you may find it useful to refer to ***"What to Install" on page 4 - 1*** and ***"BIOS Utilities" on page 5 - 1*** in the remainder of the User's Manual. You may also find the notes marked with a ✎ of interest to you.

Beginners and Non-Advanced Users

✎

Notes

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

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

Warning Boxes

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

Not Included

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

Drivers

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

Ports and Jacks

See ***"Interface (Ports & Jacks)" on page A - 1*** for a description of the interface (ports & jacks) which allow your computer to communicate with external devices, connect to the internet etc.

System Startup

1. Remove all packing materials, and place the computer on a stable surface.
2. Securely attach any peripherals you want to use with the notebook (e.g. keyboard and mouse) to their ports.
3. **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 on the right of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter and the battery will now be unlocked.
4. Keep the AC/DC adapter connected to the computer to fully charge the battery to 100% capacity (the battery LED indicator will turn green).
5. Use one hand to raise the lid/LCD to a comfortable viewing angle (**do not exceed 180 degrees**); use the other hand to support the base of the computer (**Note**: **Never** lift the computer by the lid/LCD).
6. Press the power button on the right side of the computer to turn it 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.

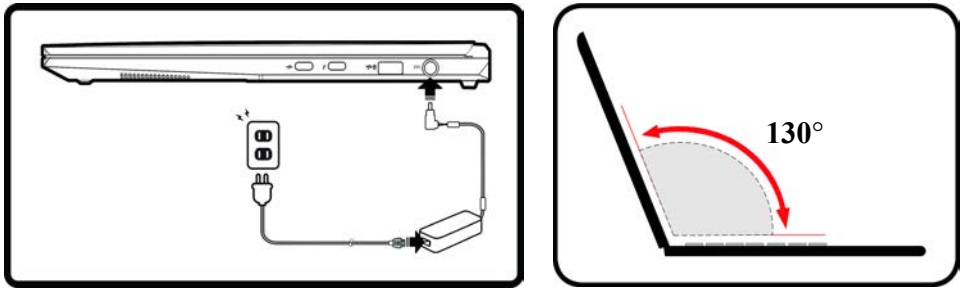


Figure 1 - 1 **- Computer with AC/DC Adapter Plugged-In & LCD/Lid Open**

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 11 (64-bit)*** operating system is supported.

Windows OS

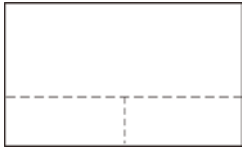
Note that the information included on the following pages is for ***Windows 11 only***.

In order to run ***Windows 11 (64-bit)*** your computer requires a minimum **8GB** of system memory (RAM).

LCD Panel Open - Model A

Figure 1 - 2
LCD Panel Open

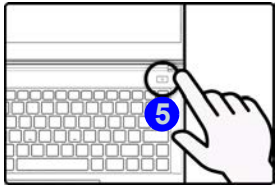
1. Built-in Webcam
2. Webcam LED*
   **(Note that for the factory option Secure BIO Webcam, the LED is on the right side of the webcam)*
3. Built-In Array* Microphone
4. LCD
5. Power Button
6. Keyboard
7. Clickpad & Buttons

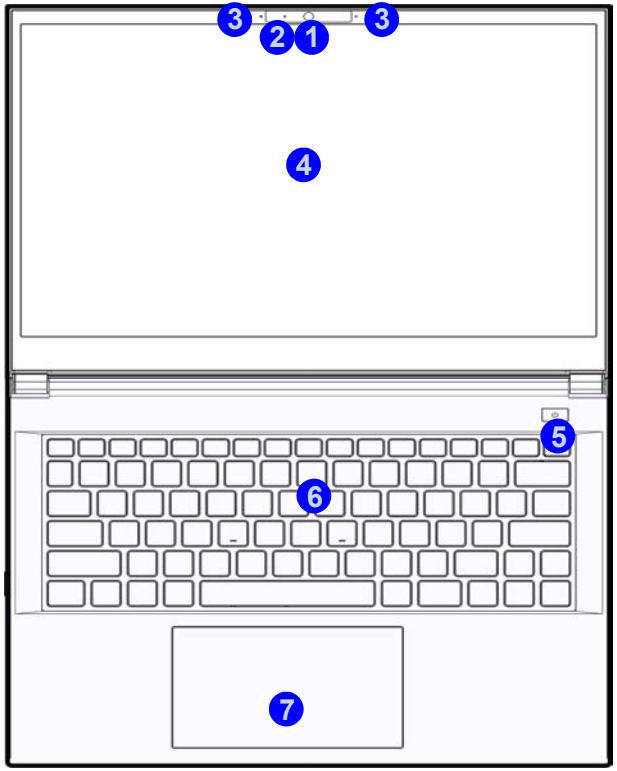


Note that the Touchpad/Clickpad and Buttons has a valid operational area indicated within the dotted lines above.
The terms Clickpad and Touchpad are interchangeable throughout this manual

Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the **WLAN & Bluetooth are OFF** if you are using the computer aboard aircraft by putting the system in to **Airplane Mode** (see ***Table 1 - 2, on page 1 - 11***).

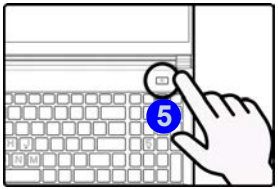




LCD Panel Open - Model B

Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the **WLAN & Bluetooth are OFF** if you are using the computer aboard aircraft by putting the system in to **Airplane Mode** (see ***Table 1 - 2, on page 1 - 11***).



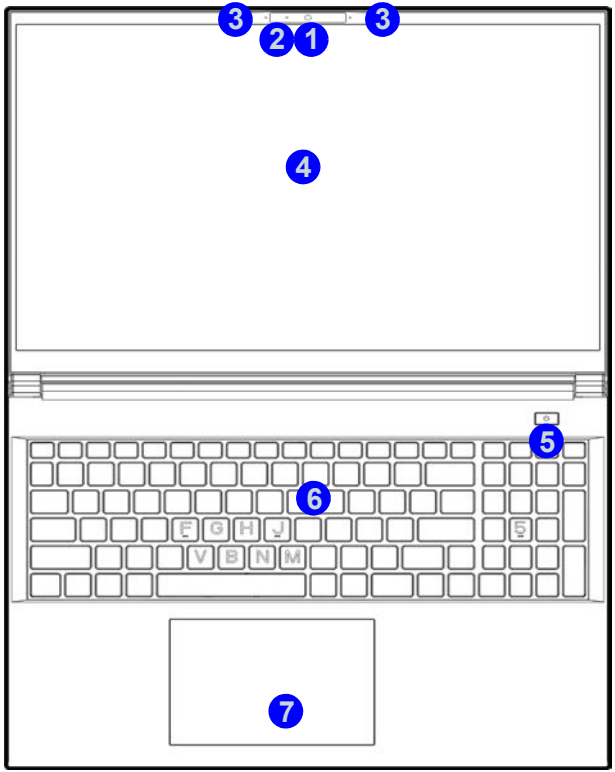
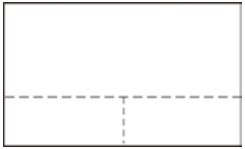


Figure 1 - 3
LCD Panel Open

1. Built-in Webcam
2. Webcam LED*
   **(Note that for the factory option Secure BIO Webcam, the LED is on the right side of the webcam)*
3. Built-In Array* Microphone
4. LCD
5. Power Button
6. Keyboard
7. Clickpad & Buttons



Note that the Touchpad/Clickpad and Buttons has a valid operational area indicated within the dotted lines above.
The terms Clickpad and Touchpad are interchangeable throughout this manual

LED Indicators

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

Icon	Color	Description
	Orange	DC Power is Plugged In
	Green	The Computer is On
	Blinking Green	The Computer is in Sleep Mode
	Orange	The Battery is Charging
	Green	The Battery is Fully Charged
	Blinking Orange	The Battery Has Reached Critically Low Power Status

Table 1 - 1 **- LED Indicators**

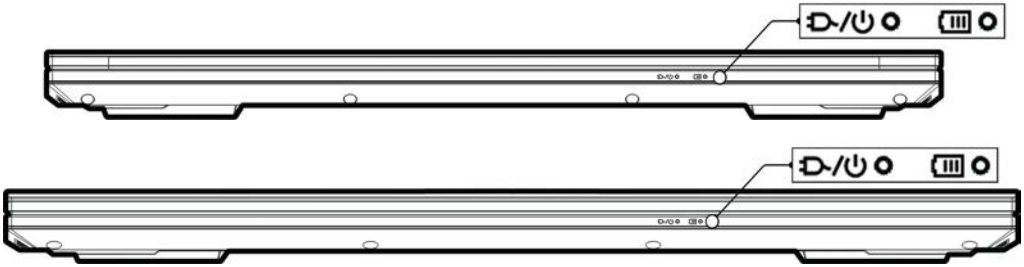
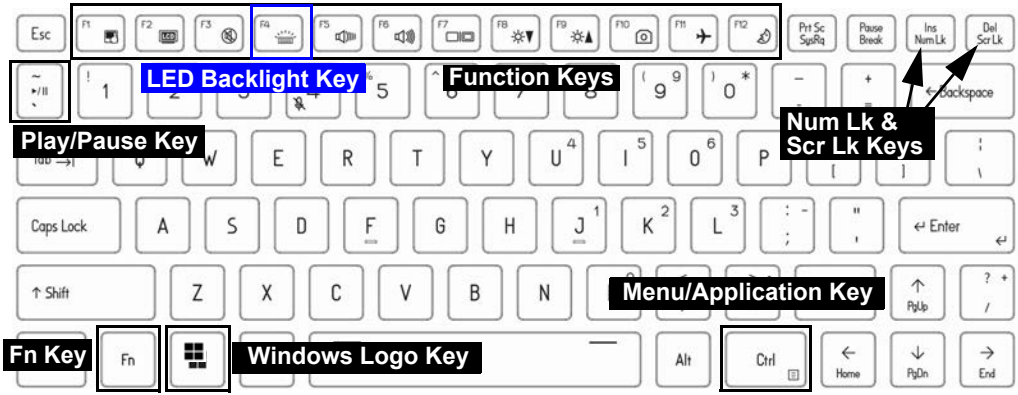


Figure 1 - 4 **- LED Indicators**

1 - 8 LCD Panel Open - Model B

Model A - Keyboard / Illuminated Keyboard

The keyboard has function keys to change operational features instantly.



**Note that the LED Backlight key (F4) is only included for white illuminated keyboards only*

Figure 1 - 5 **- Model A Keyboard**

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

Other Keyboards

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

Scr Lk & Num Lk

Hold down the **Fn Key** and Scr Lk or Num Lk to enable scroll lock, and number lock.

Other Keyboards

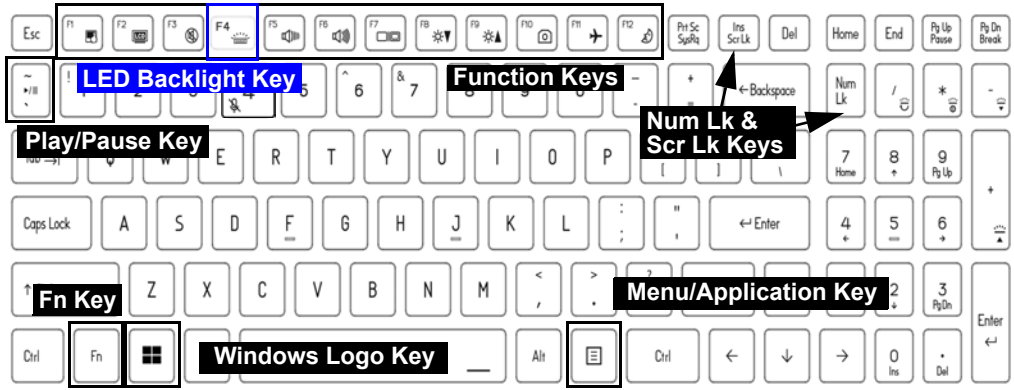
If your keyboard is damaged or you just want to make a change, you can use any standard USB keyboard. The system will detect and enable it automatically. However special functions/hot-keys unique to the system's regular keyboard may not work.

Scr Lk & Num Lk

Hold down the **Fn Key** and Scr Lk or Num Lk to enable scroll lock, and number lock.

Model B - Keyboard / Illuminated Keyboard

The keyboard has function keys to change operational features instantly.



**Note that the LED Backlight key (F4) is only included for white illuminated keyboards only*

Figure 1 - 6 **- Model B Keyboard**

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

Function/Hot Key Indicators

Keys	Function		Keys	Function
Fn + ~ ▶/II `	Play/Pause (in Audio/Video Programs)		Fn + F8 ☼▼ F9 ☼▲	Display Brightness Decrease/Increase
Fn + ! 1	*Fan Control Toggle Automatic / Maximum		Fn + F10	Webcam Power Toggle
Fn + F1	Touchpad Toggle		Fn + F11	Airplane Mode Toggle
Fn + F2 LCD	Turn LCD Backlight Off (Press a key to or use TouchPad to turn on)		Fn + F12	Sleep Toggle
Fn + F3	Mute Toggle		Fn + Ins Num Lk	Number Lock Toggle
Fn + F4	For Illuminated white LED Keyboards Only- Toggle Off/High/Low		Fn + Del Scr Lk	Scroll Lock Toggle
Fn + F5 F6	Volume Decrease/ Increase		Caps Lock	Caps Lock Toggle
Fn + F7	Change Display Configuration		Fn + Esc	Control Center Toggle
Fn + ←Backspace	Flexikey® Enable/Disable		Fn + 3 # 3	Power Modes Toggle
Fn + 4 $ 4	Microphone Toggle			

Table 1 - 2
Function/Hot Key Indicators

Control Center

Run the **Control Center (fn hotkeys and OSD)** from the **Windows Start** menu or use the **Fn + Esc** key combination, or double-click the icon in the notification area of the taskbar. The **Control Center** provides quick access to **Power Modes**, **Fan** settings, **Preferences** and **LED Keyboard** (if your purchase configuration includes an LED Keyboard) configuration. There is a Help menu available with the Control Center.

Front & Rear Views - Model A

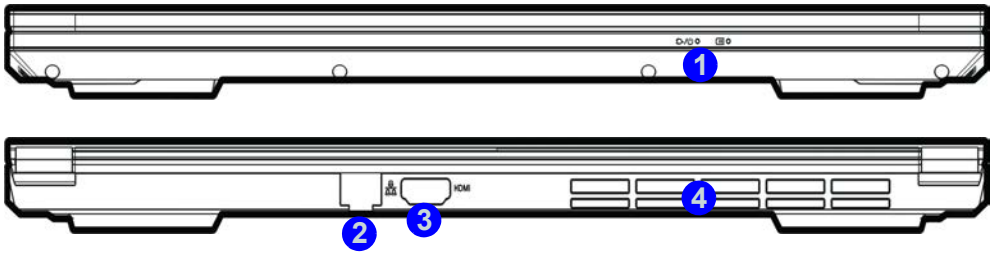


Figure 1 - 7
Front & Left Views

1. LED Indicators
2. RJ-45 LAN Jack
3. HDMI-Out Port
4. Vent/Fan Intake/ Outlet

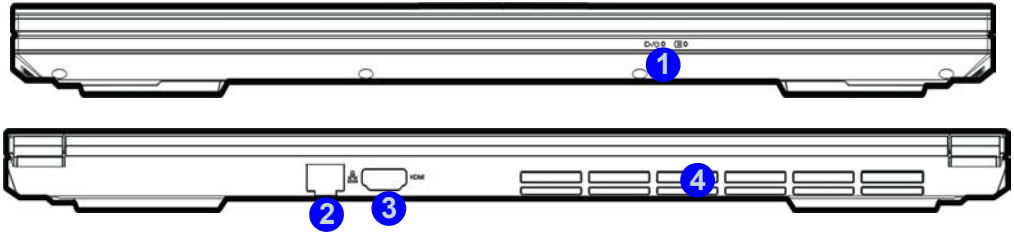
Overheating

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

Front & Rear Views - Model B

Figure 1 - 8
Front & Left Views

1. LED Indicators
2. RJ-45 LAN Jack
3. HDMI-Out Port
4. Vent/Fan Intake/ Outlet



Overheating

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

Left View - Model A

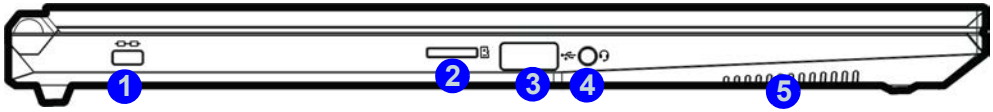


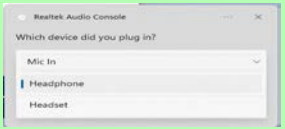
Figure 1 - 9
Front & Left Views

1. Security Lock Slot
2. MicroSD Push-Push Card Reader
3. USB 3.2 Gen 1 Type A Port
4. 2-In-1 Audio Jack (Headphone/ Microphone)
5. Speaker

2-In-1 Combination Audio Jacks

Note that 2-In-1 combination audio jacks can support headphones, microphones or head-sets (i.e. a combination microphone/headphone).

1. When a device is plugged in to the combination audio jack a a dialog ("*Which device did you plug in*?") box will pop-up.



2. Make sure you select the correct device from the drop-down menu corresponding to the device plugged-in (e.g. **choose "Headset" if you have plugged-in a headset** and do not choose headphone in this case), and then click **OK** to save the setting.

MicroSD Card Reader

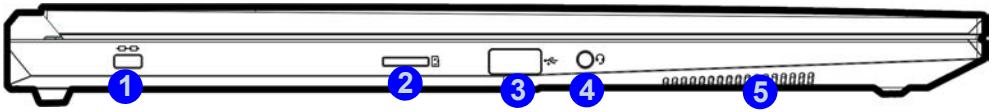
The card reader allows you to use microSD storage cards:

microSD / microSDHC / microSDXC

Left View - Model B

Figure 1 - 10
Front & Left Views

1. Security Lock Slot
2. MicroSD Push-Push Card Reader
3. USB 3.2 Gen 1 Type A Port
4. 2-In-1 Audio Jack (Headphone/ Microphone)
5. Speaker



2-In-1 Combination Audio Jacks

Note that 2-In-1 combination audio jacks can support headphones, microphones or headsets (i.e. a combination microphone/headphone).

1. When a device is plugged in to the combination audio jack a a dialog ("*Which device did you plug in*?") box will pop-up.

2. Make sure you select the correct device from the drop-down menu corresponding to the device plugged-in (e.g. **choose "Headset" if you have plugged-in a headset** and do not choose headphone in this case), and then click **OK** to save the setting.

MicroSD Card Reader

The card reader allows you to use microSD storage cards:

microSD / microSDHC / microSDXC

Right View - Model A

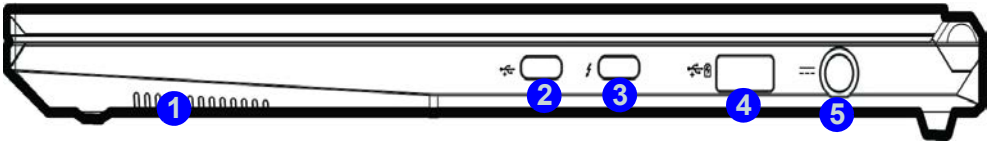


Figure 1 - 11
Right View

1. Speaker
2. USB 3.2 Gen 2 Port with Power Delivery DC-In (Type C)
3. Thunderbolt™ 4 Combo Port with Power Delivery DC-In (Type C)
4. USB 3.2 Gen 2 Port (Type A) with AC/DC Powered Function
5. DC-In Jack

USB & Thunderbolt Ports

On this computer model there is one USB 3.2 Gen 1 Type A port, one USB 3.2 Gen 2 Type A port with AC/DC powered function, one USB 3.2 Gen 2 Type C port with Power Delivery DC-In and one Thunderbolt™ 4 Combo port (Type C) with Power Delivery DC-In.

Note: The maximum amount of current supplied by the USB ports is 900 mA for USB 3.2 & Type C. The maximum amount of current supplied by the Thunderbolt™ 4 port is 5V/3A in AC or DC mode.

Powered USB Port

Note that the powered USB 3.2 Gen 2 (Type A) port is not operational under DOS and does not support wake on USB. The **powered USB 3.2** (4) 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). Toggle power to this port by using **Fn + power button**.

Thunderbolt Port

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

Power Delivery with DC-In USB Port / Thunderbolt™ 4 Combo Port (Type C)

The USB 3.2 Gen 2 Type C and Thunderbolt™ 4 Combo ports, with the Power Delivery DC-In Function, allow you to use a power source, with a USB Type C cable and connector, plugged into the port to charge the computer.

Make sure any power source is appropriately certified, and complies with the USB-C PD (Power Delivery) standard specification rated at 20Vdc, 5A, or 20Vdc 3.25A.

Right View - Model B

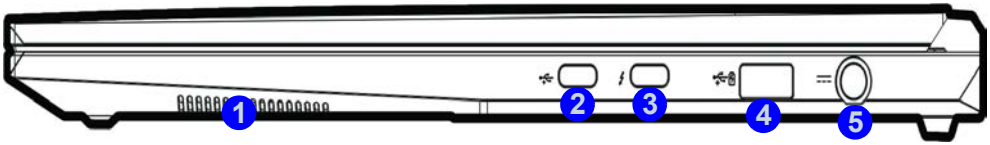


Figure 1 - 12
Right View

1. Speaker
2. USB 3.2 Gen 2 Port with Power Delivery DC-In (Type C)
3. Thunderbolt™ 4 Combo Port with Power Delivery DC-In (Type C)
4. USB 3.2 Gen 2 Port (Type A) with AC/DC Powered Function
5. DC-In Jack

USB & Thunderbolt Ports

On this computer model there is one USB 3.2 Gen 1 Type A port, one USB 3.2 Gen 2 Type A port with AC/DC powered function, one USB 3.2 Gen 2 Type C port with Power Delivery DC-In and one Thunderbolt™ 4 Combo port (Type C) with Power Delivery DC-In.

Note: The maximum amount of current supplied by the USB ports is 900 mA for USB 3.2 & Type C. The maximum amount of current supplied by the Thunderbolt™ 4 port is 5V/3A in AC or DC mode.

Powered USB Port

Note that the powered USB 3.2 Gen 2 (Type A) port is not operational under DOS and does not support wake on USB. The **powered USB 3.2** (4) 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). Toggle power to this port by using **Fn + power button**.

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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.

Power Delivery with DC-In USB Port / Thunderbolt™ 4 Combo Port (Type C)

The USB 3.2 Gen 2 Type C and Thunderbolt™ 4 Combo ports, with the Power Delivery DC-In Function, allow you to use a power source, with a USB Type C cable and connector, plugged into the port to charge the computer.

Make sure any power source is appropriately certified, and complies with the USB-C PD (Power Delivery) standard specification rated at 20Vdc, 5A, or 20Vdc 3.25A.

Bottom View - Model A

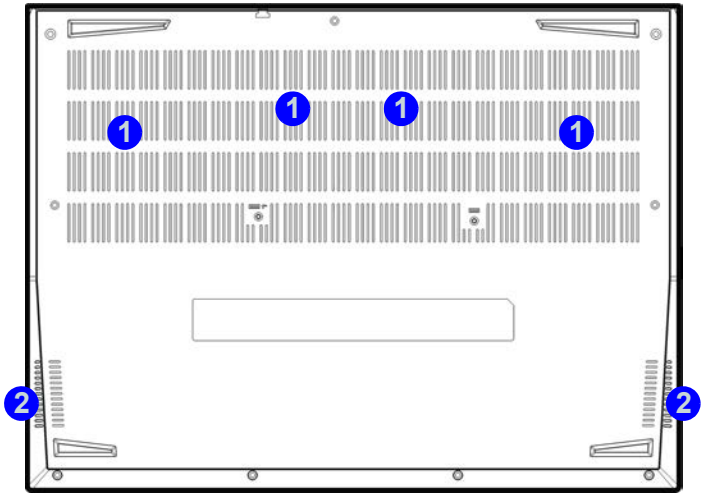


Figure 1 - 13
Bottom View

1. Vent/Fan Intake/ Outlet
2. Speakers

Overheating

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

Battery Information

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

We recommend that you do not remove the battery yourself.

Bottom Cover Removal Warning

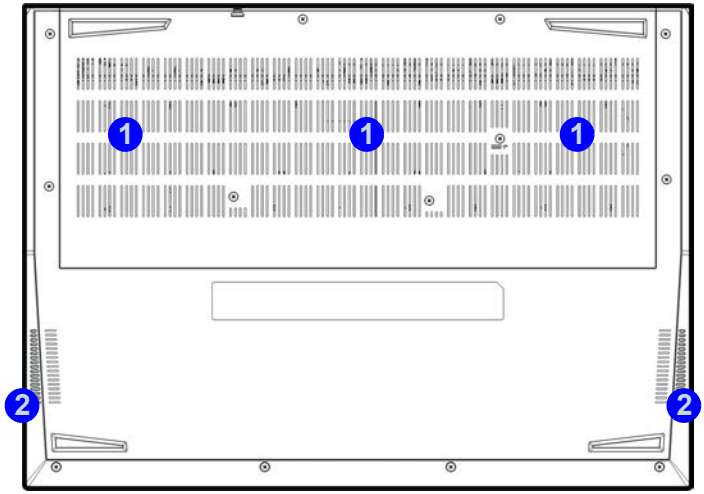
Do not remove any cover(s) and /or screw(s) for the purposes of device upgrade as this may violate the terms of your warranty.

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 - Model B

Figure 1 - 14
Bottom View

1. Vent/Fan Intake/ Outlet
2. Speakers



Overheating

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

Battery Information

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

We recommend that you do not remove the battery yourself.

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.

Windows 11 Start Menu

Most of the apps, control panels, utilities and programs within ***Windows 11*** can be accessed from the **Start Menu** by clicking the icon in the taskbar at the bottom 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 11***.

However note that these screens are always subject to change, upgrade and redesign. Check the Microsoft website for details.

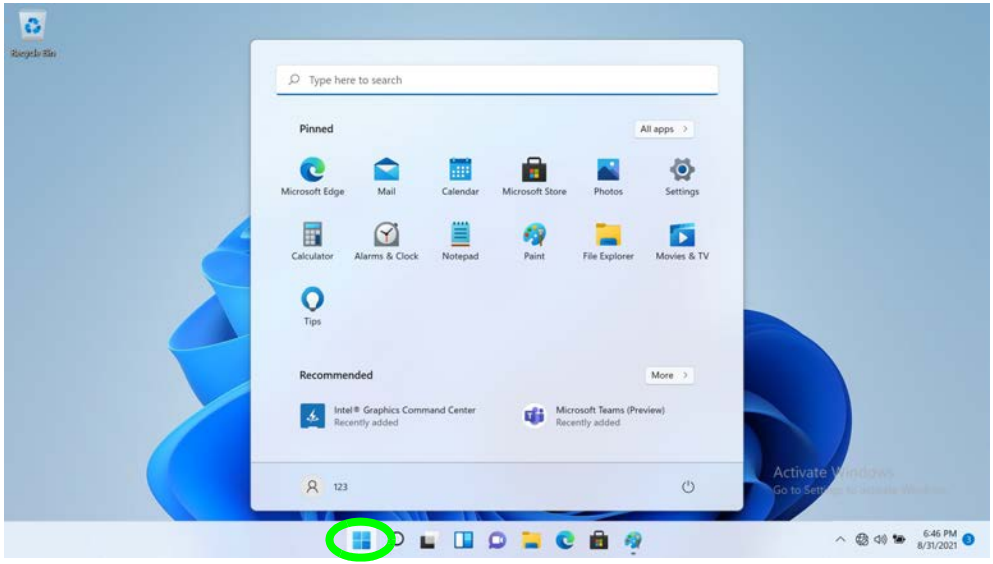


Figure 1 - 15 **- Windows Start Menu**

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.

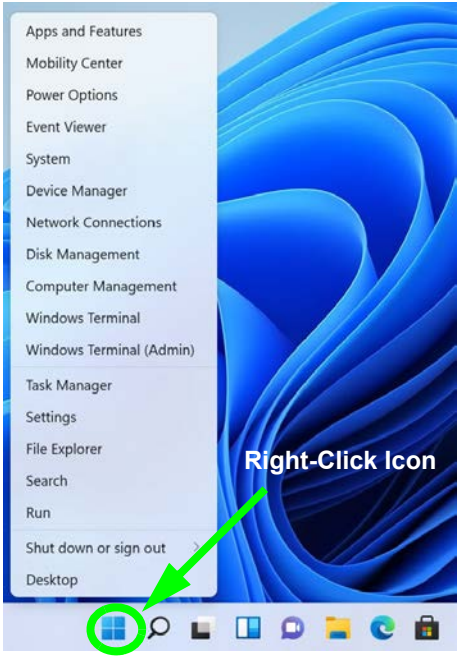


Figure 1 - 16 **- Right-Click Windows Logo in Start Menu**

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).

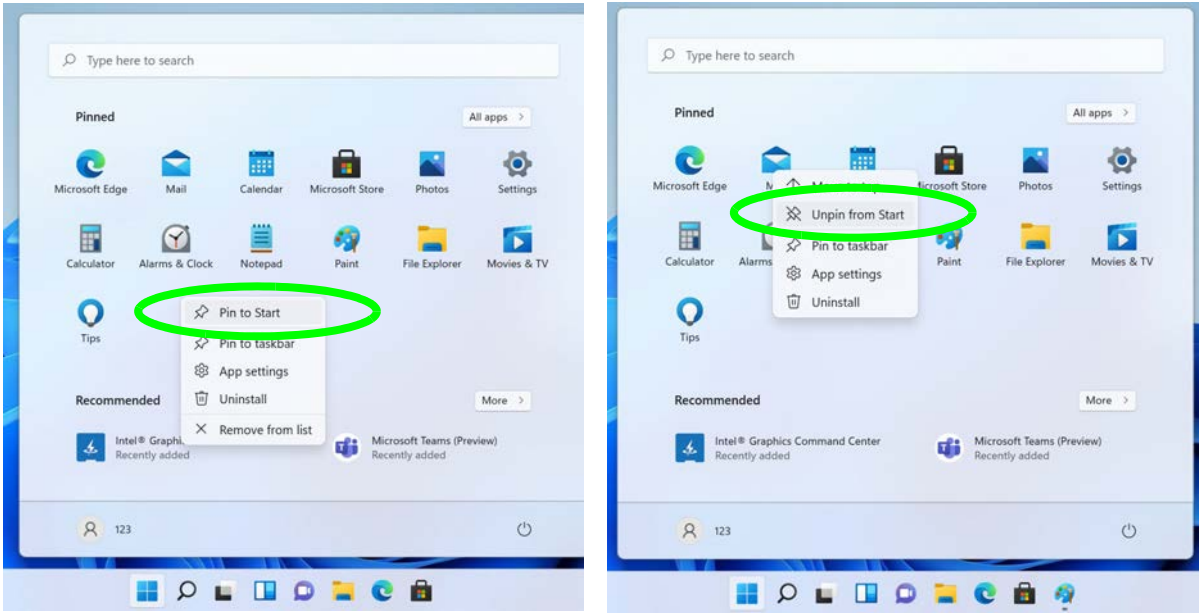


Figure 1 - 17 **- Pin to Start/Unpin from Start**

Windows 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***.

- Use the ***Windows Logo Key*** ⊞ + ***R*** key combination and type "***Control Panel***".
- 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 ***taskbar.***

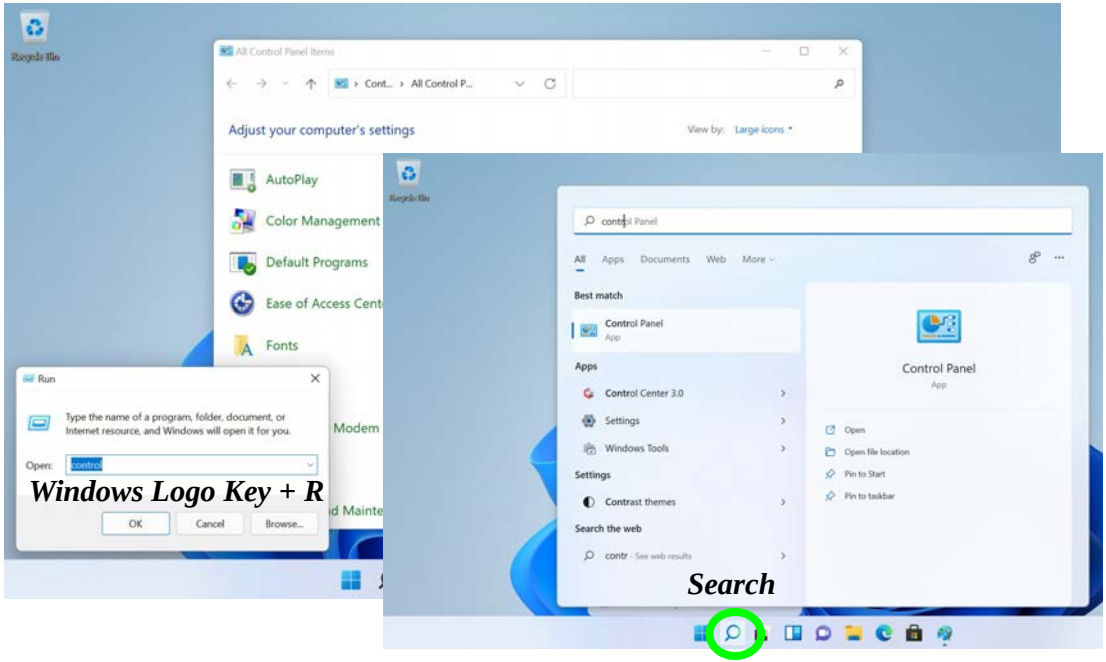


Figure 1 - 18 **- Windows Control Panel Access**

Windows 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, Bluetooth & devices, Network & internet, Personalization, Apps, Accounts, Time & language, Gaming, Accessibility, Privacy & security and Windows Update.

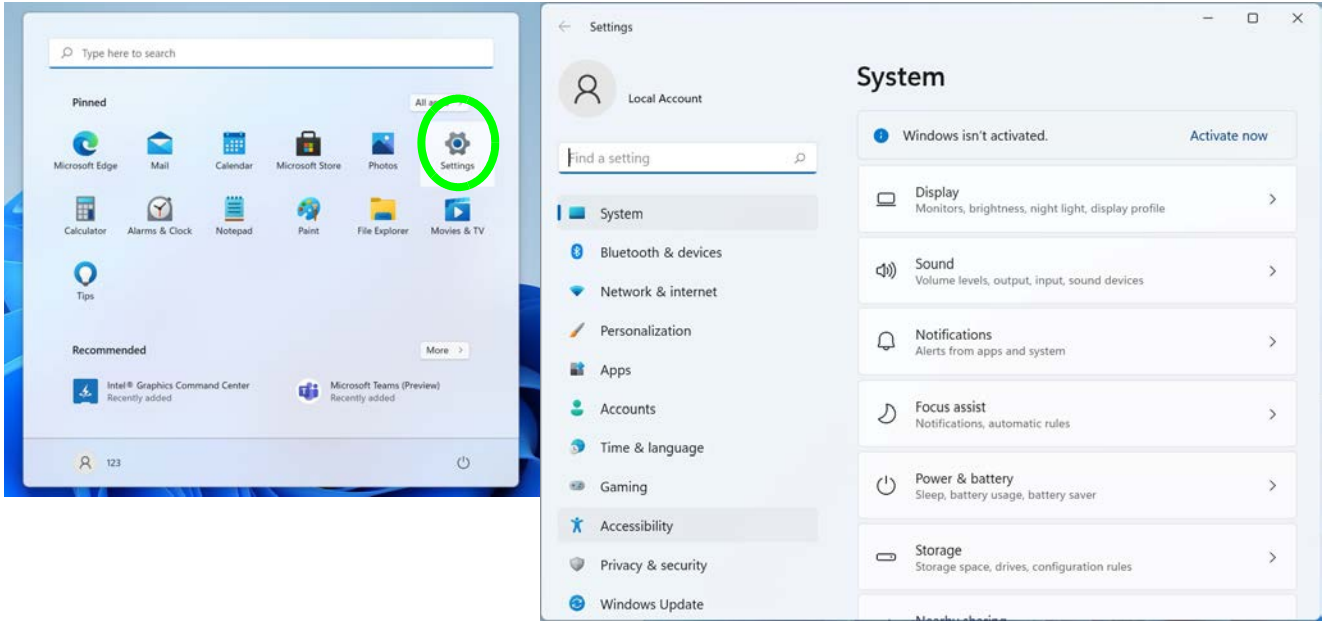


Figure 1 - 19 **- Settings**

Windows 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.

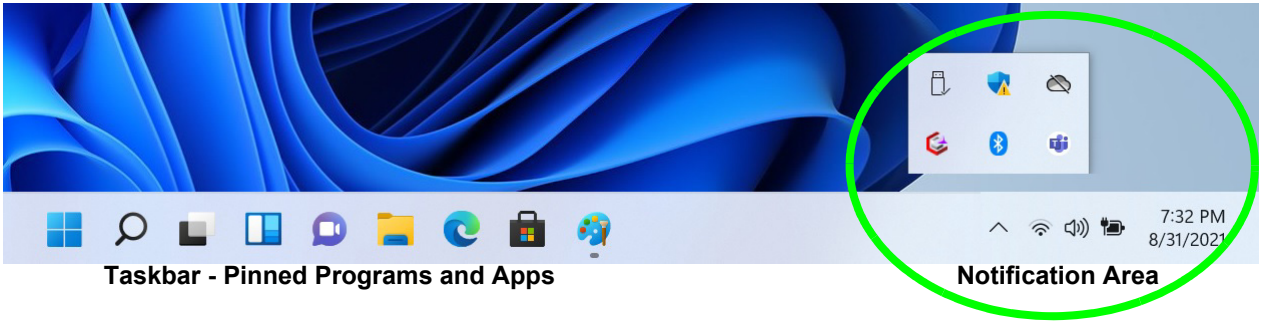


Figure 1 - 20 **- Taskbar**

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 - 25***).

Windows Action Center

The **Action Center** appears as a panel on the right side of the screen when you click the battery icon (or use the **Windows Logo Key** + **A** key combination) in the notification tray. This gives you access to commonly needed functions like Network, All Settings, Airplane Mode, Bluetooth, Brightness and Volume etc. Click on the Edit Quick Settings icon to add or remove some items to/from the Action Center (e.g. the **Project** item).

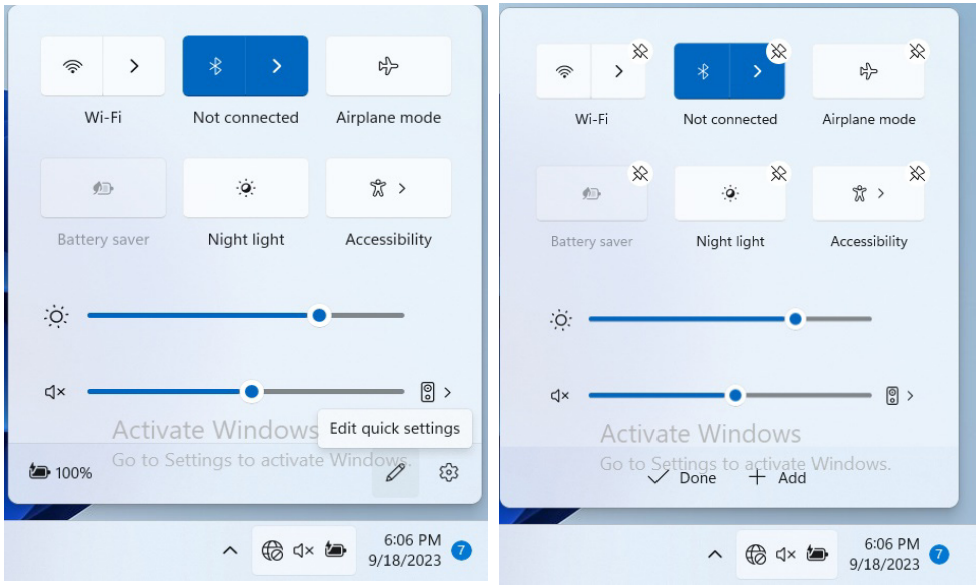


Figure 1 - 21 **- Action Center**

Video Features

You can switch display devices, and configure display options, from the **Display settings** (click the **Start Menu** and click **Settings > System** or right-click the desktop and select **Display settings**) control panel (see page ***1 - 31***). In ***Windows 11*** it is possible to quickly configure external displays from the **Project** menu (press the Windows logo key ⊞ on your keyboard and the **P** key or **Fn + F7**).

To Configure Displays using Project

1. Attach your display to the appropriate port, and turn it on.
2. Press the ⊞ **+ P** (or **Fn + F7**) 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. Press the ⊞ **+ K** key combination, or, go to the **Display** settings menu and select **Connect to a wireless display** and then click **Connect**.

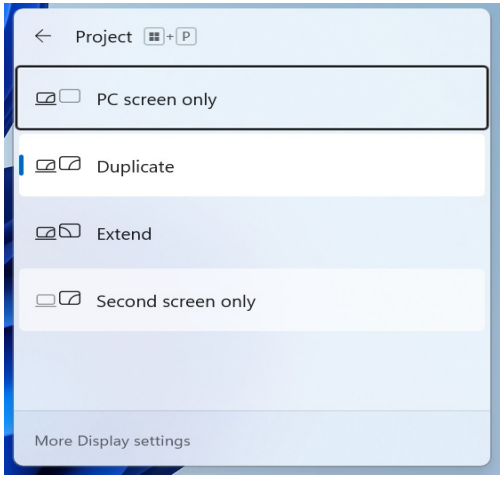


Figure 1 - 22 **- Project (Devices)**

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, HDR**, **Scale**, **Display resolution** and **orientation** from the menus.
3. When and external display is attached you can arrange the display configuration from **Duplicate these displays** menu.

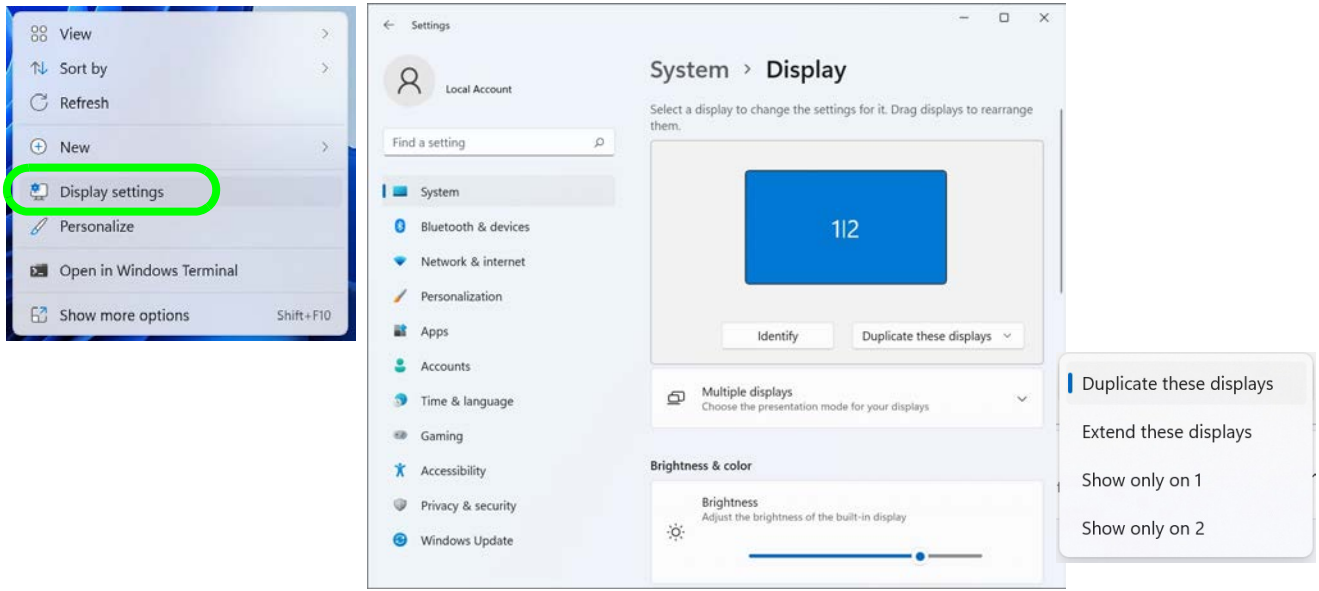


Figure 1 - 23 **- Display Settings**

To access the ***Intel(R) Graphics Command Center***:

1. Access the **Intel Graphics Command Center** from the **Start** menu in **Windows** (click **All apps** and scroll down to **Intel Graphics Command Center**).
2. You can **right-click** the **Intel Graphics Command Center** in the Start menu and pin the control panel to Start and/or taskbar.

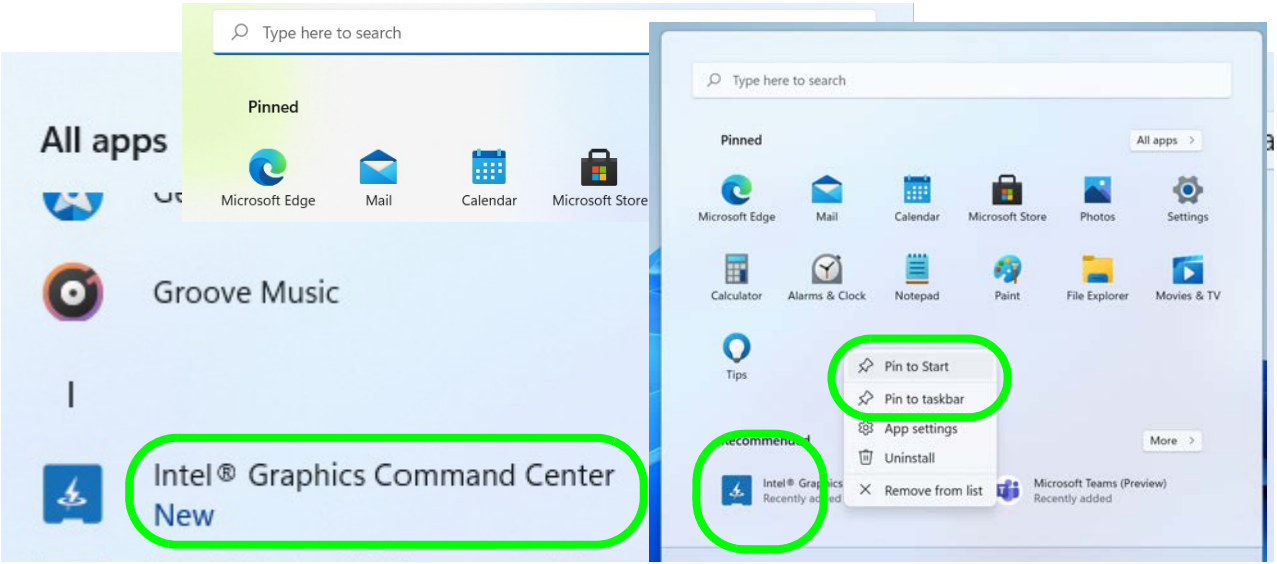


Figure 1 - 24 **- Intel® Graphics Command Center Access**

Advanced video configuration options are provided by the **Intel Graphics Command Center**.

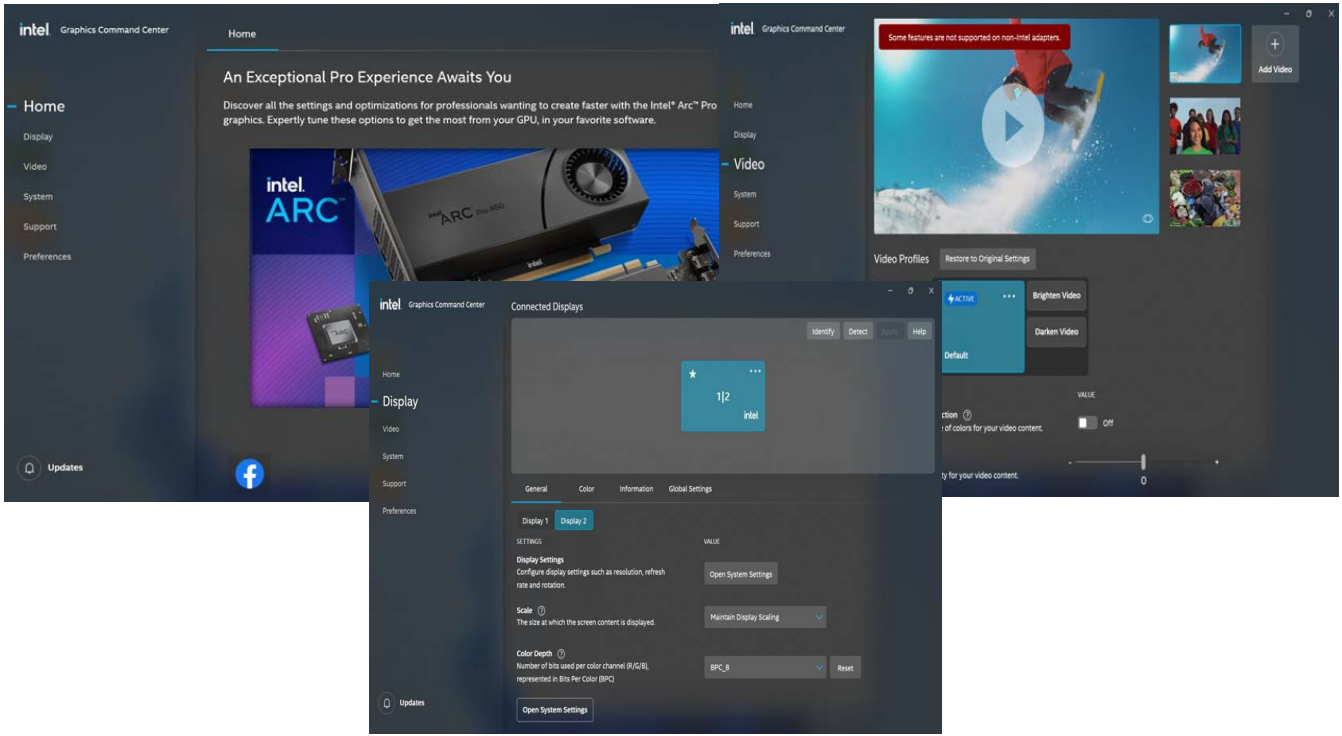


Figure 1 - 25 **- Intel® Graphics Command Center**

Minimum Screen Resolution Settings

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

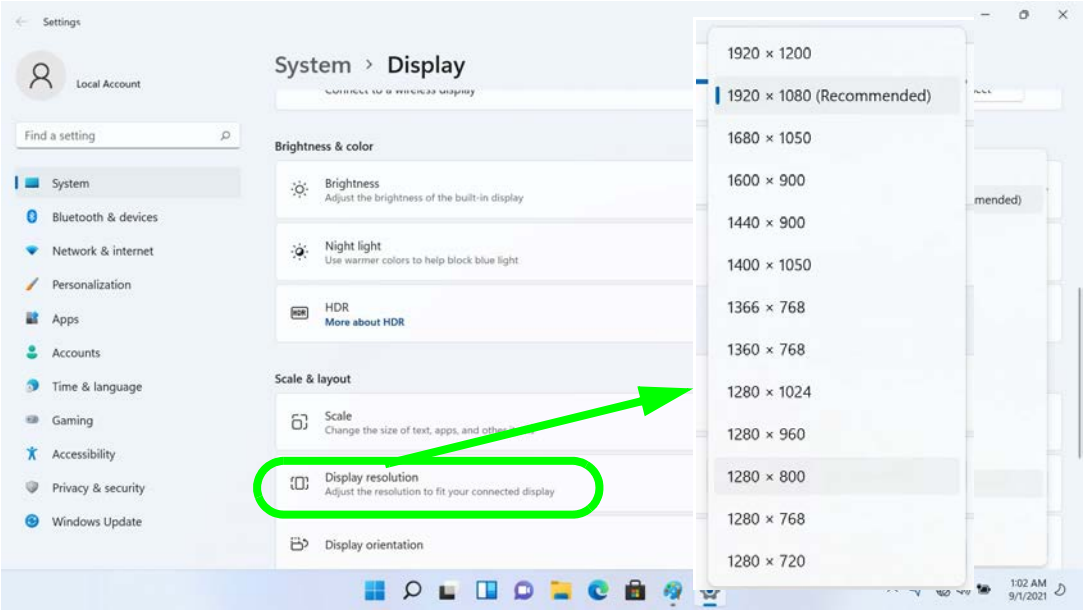


Figure 1 - 26 **- Display (Resolution)**

Power Options

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***). The **Power & battery** menu in **Settings** (system) can be used for power configuration. 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.

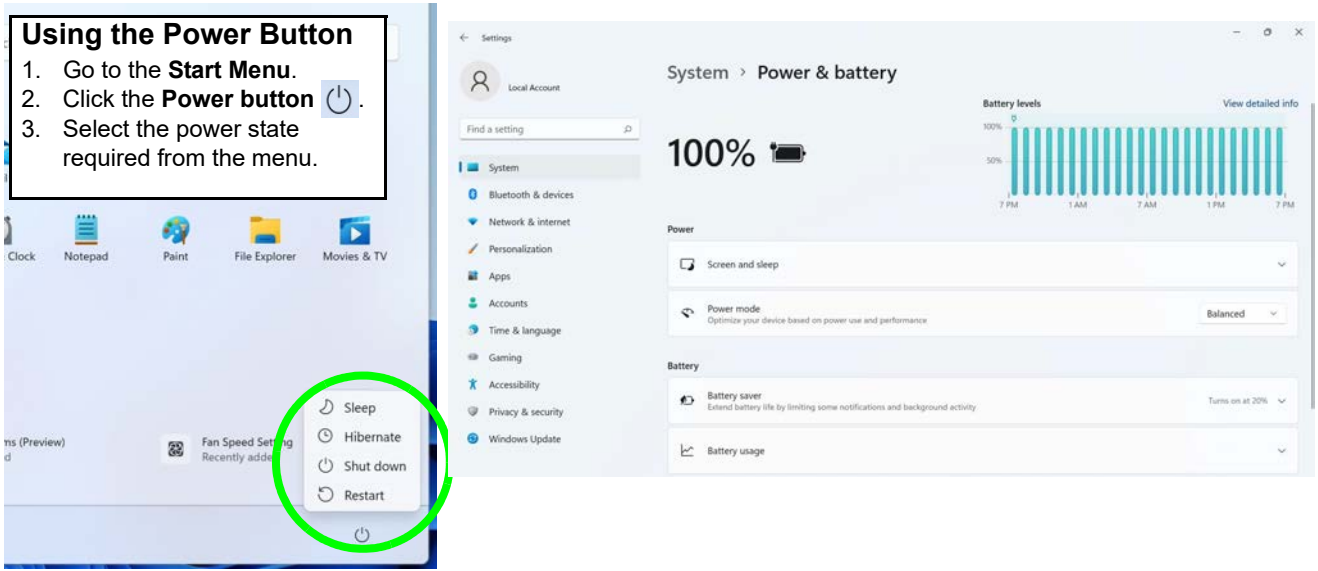
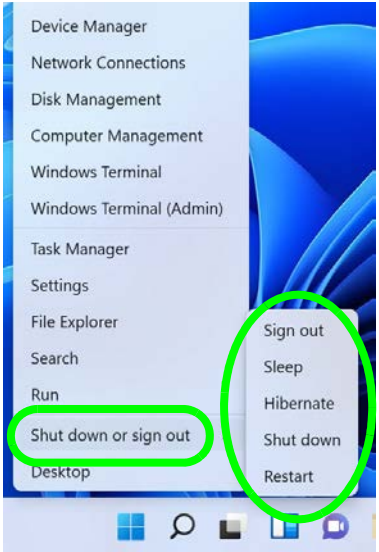


Figure 1 - 27 **- Shut Down/Restart & Settings (System) Power & Battery**

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 Menu

1. Go to the **Power Options** (**Hardware and Sound**) control panel (see ***"Windows Control Panel" on page 1 - 26***).
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 - 28 **- 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**, **Switch User, Sign out**, **Change a password and Task Manager** . 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: Features & Components

Overview

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

- Solid State Drive
- MicroSD Push-Push Card Reader
- Clickpad/Touchpad and Buttons/Mouse
- Realtek Audio Console

Bottom Cover Removal Warning

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

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

Solid State Drive

The solid state drive (SSD) is used to store your data in the computer. The SSD can be taken out to accommodate other serial SSDs, however you will need to contact your distributor/supplier to do this in order to avoid violating the terms of your warranty (see ***"Storage" on page C - 2*** for specification information).

MicroSD Push-Push Card Reader

The card reader allows you to use microSD storage cards. Push the card into the slot and it will appear as a removable device, and can be accessed in the same way as your hard disk (s). Make sure you install the card reader driver (see ***"CardReader" on page 4 - 8***).

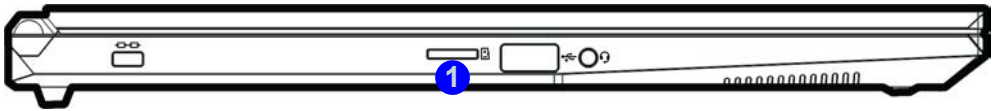
The compatible microSD card formats are listed below:

- microSD / microSDHC / microSDXC

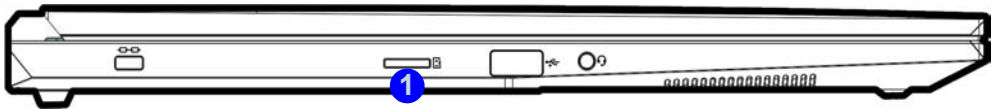
Push-Push Card Reader

The card reader features a push-in/push-out card insertion and ejection mechanism. Simply push the card to insert and eject it.

Model A



Model B



1. Card Reader

Figure 2 - 1
Left View

Clickpad Cleaning

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

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

Disabling the Pad

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

Clickpad/Touchpad and Buttons/Mouse

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

Clickpad Sensitivity

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

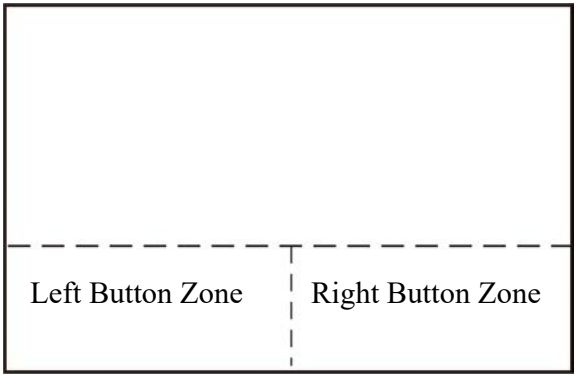


Figure 2 - 2
Clickpad Zones

The terms Clickpad and Touchpad are interchangeable throughout this manual.

Mouse Driver

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

Mouse Properties Control Panel

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

1. Click the **Settings** item in the **Start Menu** (or **All Settings** in the Action Center).
2. Click **Bluetooth & Devices**.
3. Click **Mouse**.
4. Click **Additional mouse settings**.

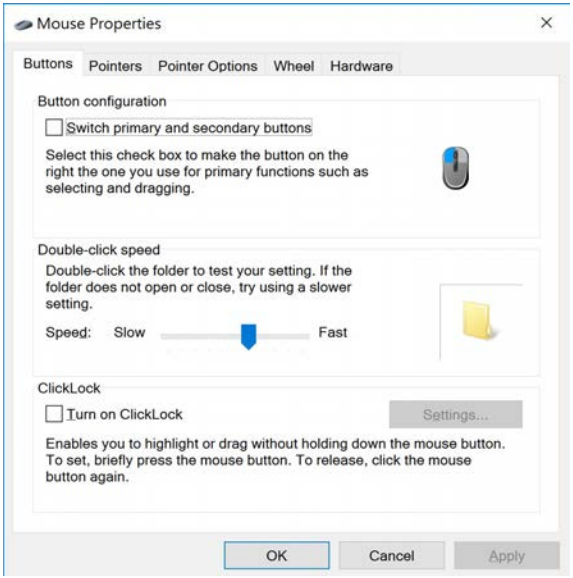


Figure 2 - 3
Mouse Properties Control Panel - Buttons

Disabling the Touchpad

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

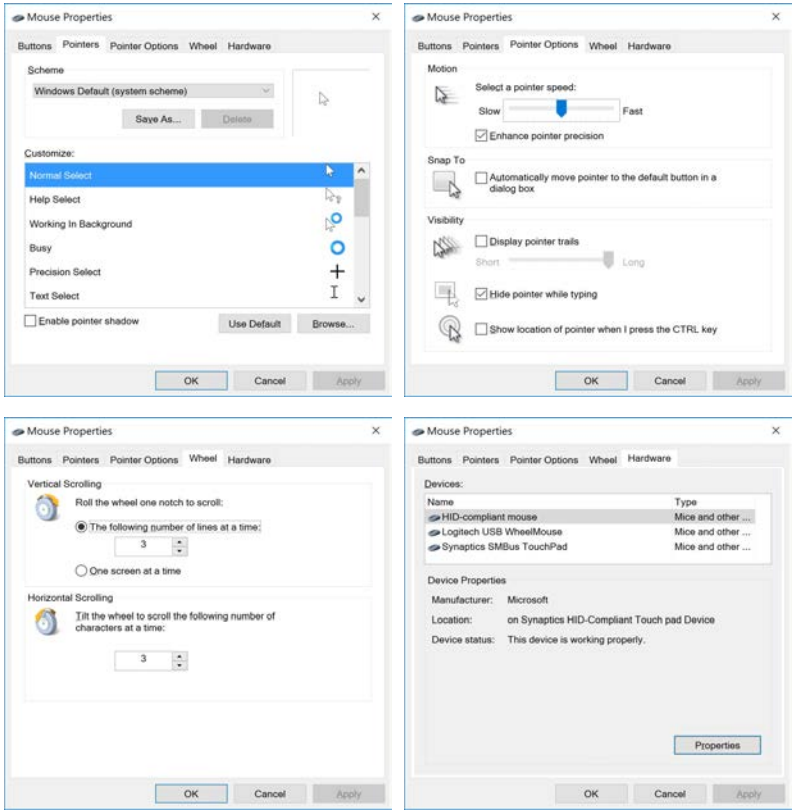


Figure 2 - 4
Mouse Properties Control Panels

Mouse & Touchpad Devices

You can 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 **Bluetooth & Devices**.
3. Click **Mouse** or **Touchpad**.

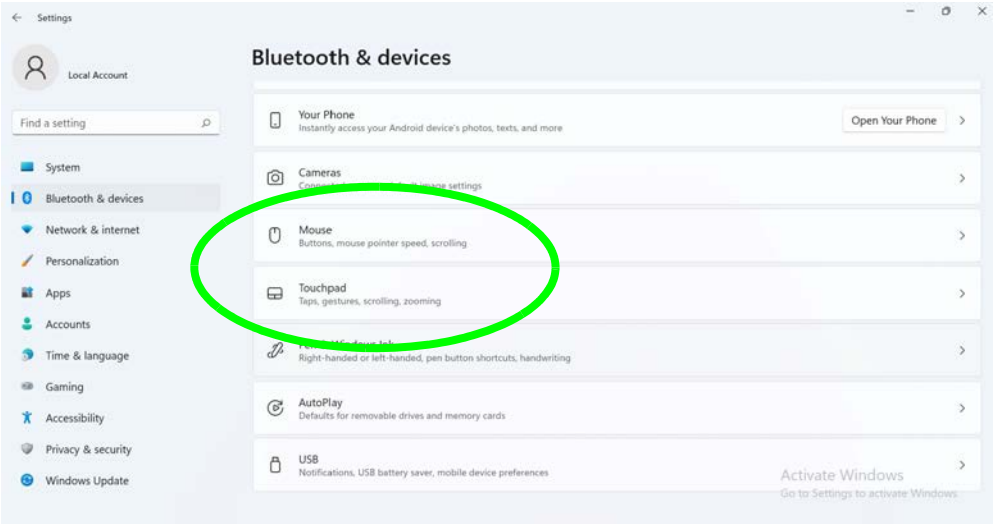


Figure 2 - 5
Windows Settings > Mouse/Touchpad

Mouse Settings

You can select the primary mouse button and scrolling options and access Mouse Properties from **Additional mouse settings**.

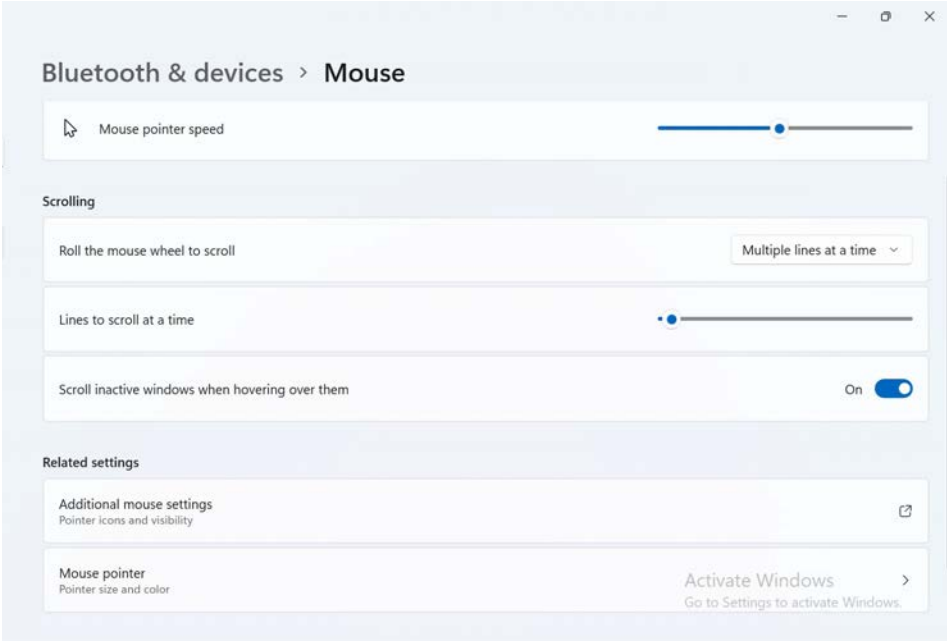


Figure 2 - 6
Windows Settings Mouse

Touchpad Settings

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

Figure 2 - 7
Windows Settings Touchpad

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.

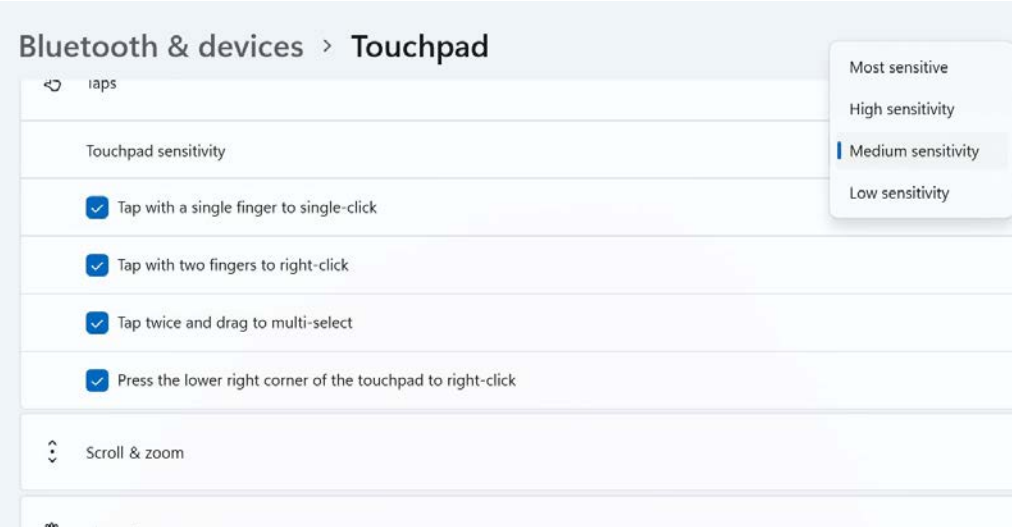


Figure 2 - 8
Windows Settings Touchpad Sensitivity & Taps

Touchapd Scroll and Zoom

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

Figure 2 - 9
Scroll and Zoom/ Scrolling 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.

Figure 2 - 10
Zooming Gesture

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.

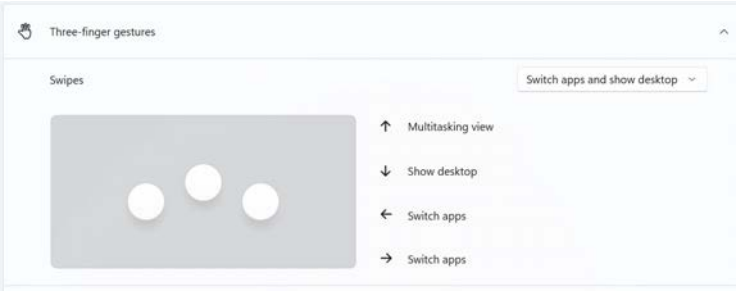


Figure 2 - 11
Three-Finger Gestures (Swipes & Taps)

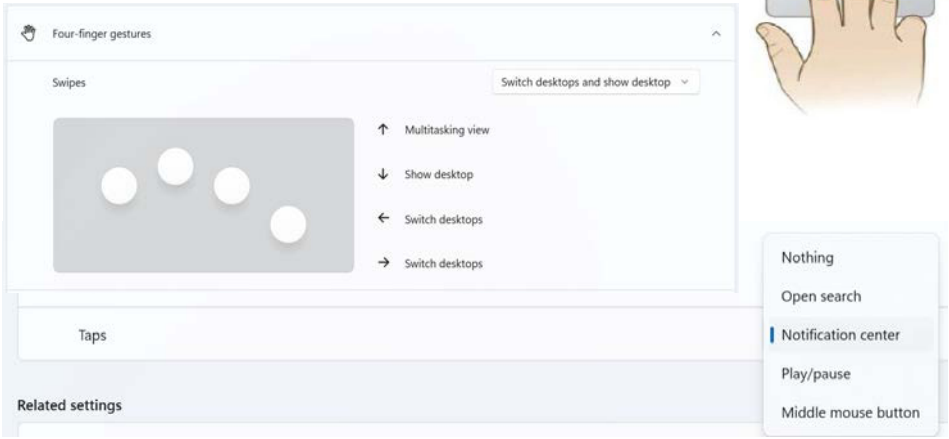


Figure 2 - 12
Four-Finger Gestures (Swipes & Taps)

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.

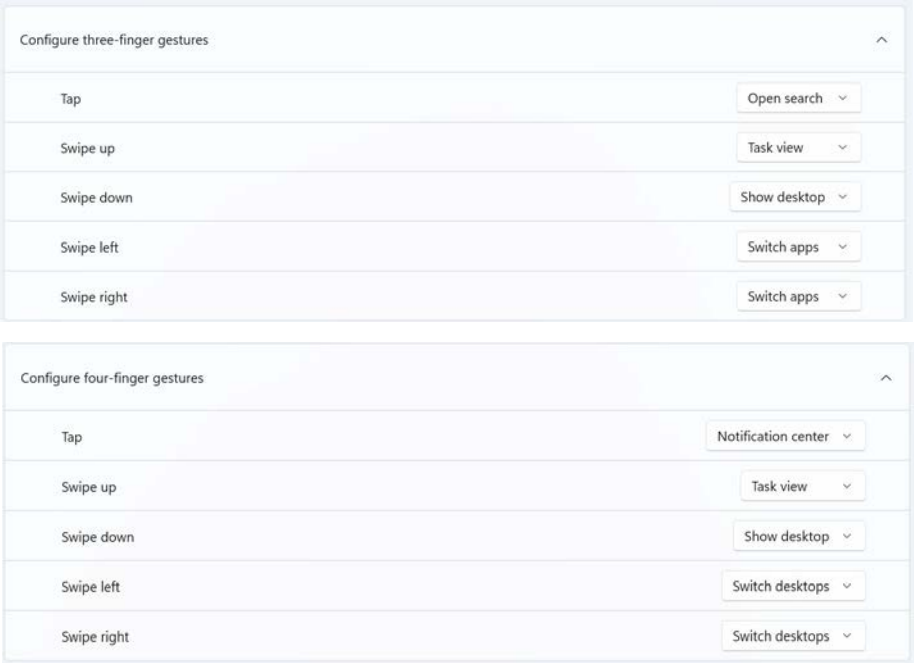
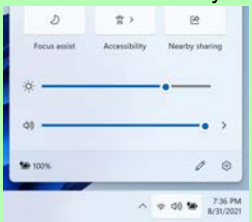


Figure 2 - 13
Touchpad Gesture Examples

Volume Adjustment

The sound volume level can be adjusted from the **Action Center** in Windows by clicking the battery icon (or use the **Windows Logo Key** **+ A** key combination) in the notification tray.



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 Windows Start** menu (click **All apps** and scroll down to **Realtek Audio Console**). **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 Action Center or the audio slider in the Settings menu (see sidebar)**.

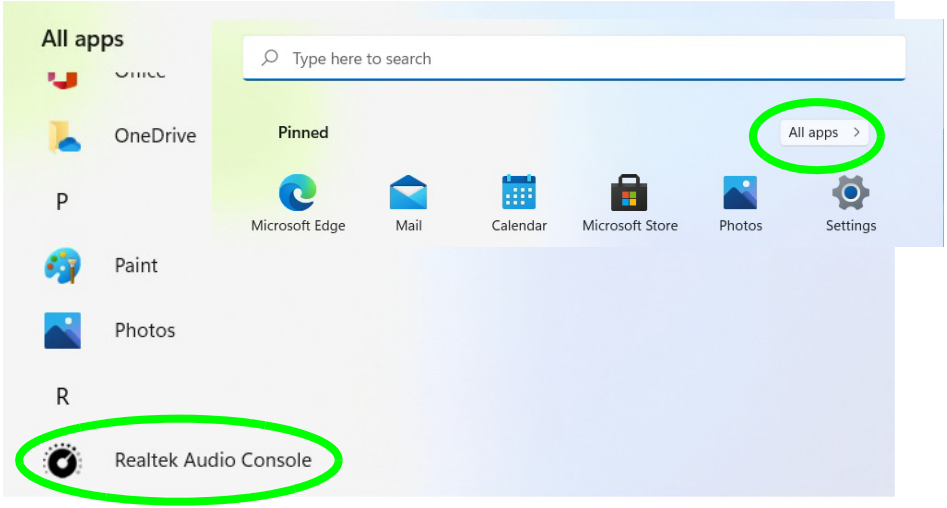


Figure 2 - 14
All Apps > Realtek Audio Console

Realtek Audio Console - Main

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

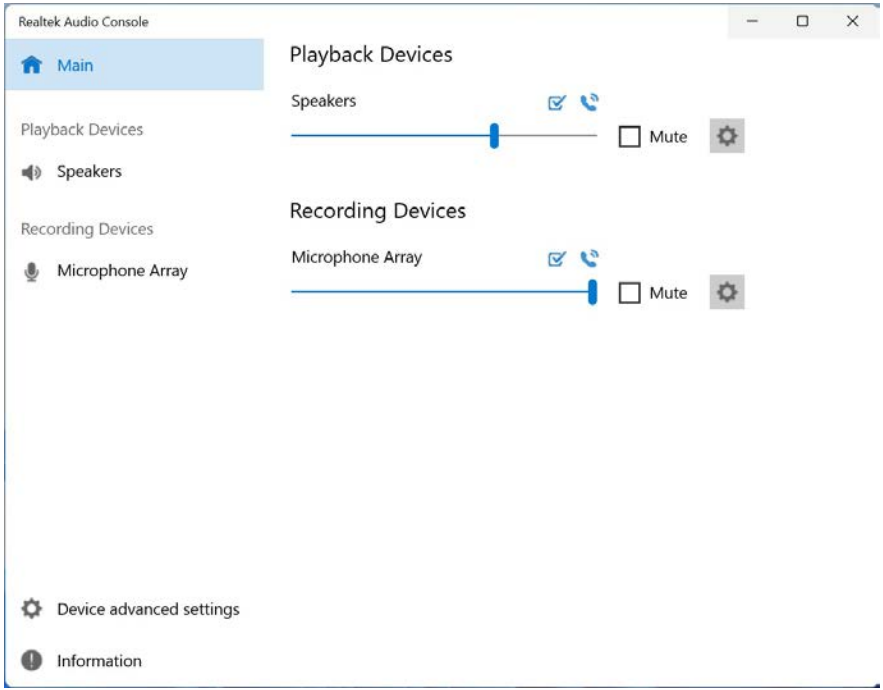
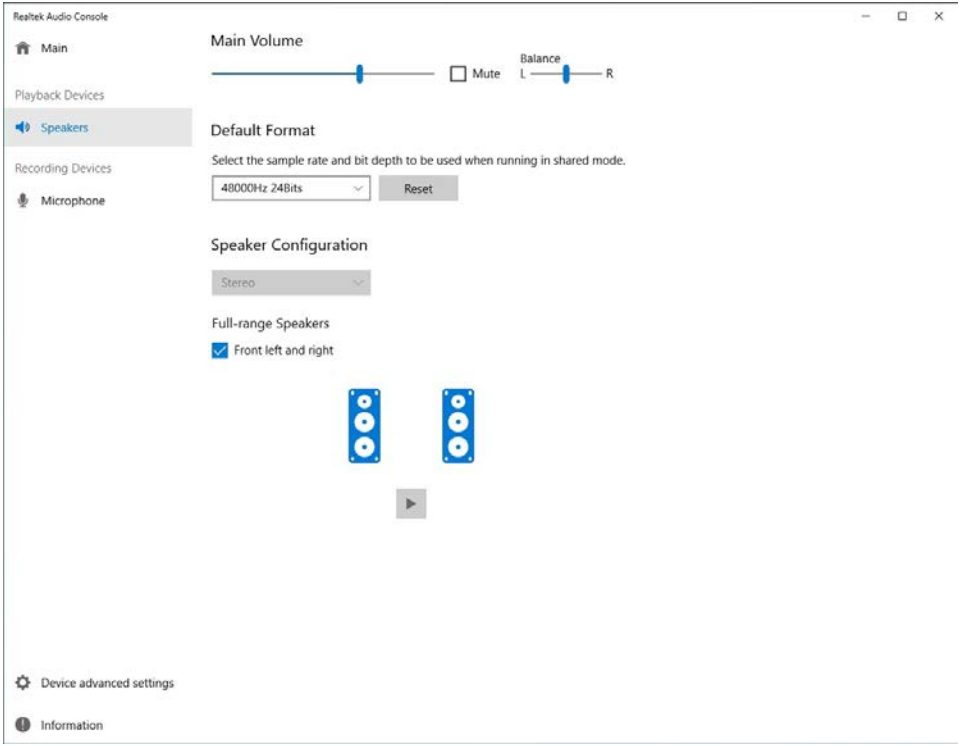


Figure 2 - 15
Realtek Audio Console (Main)

Realtek Audio Console - Speakers

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

Figure 2 - 16
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.

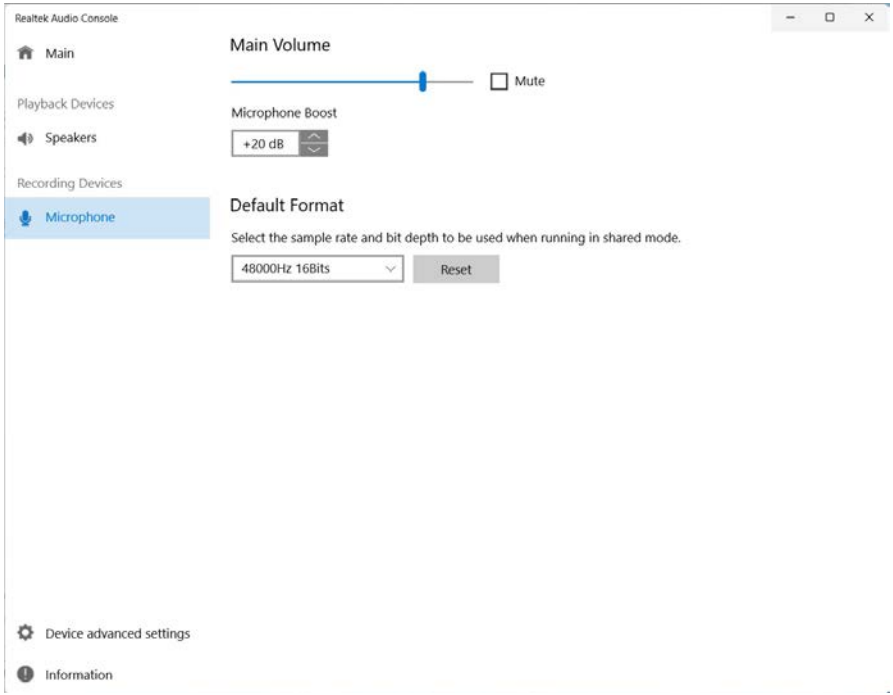


Figure 2 - 17
Realtek Audio Console (Microphone Array)

Realtek Audio Console - Device Advanced Settings

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

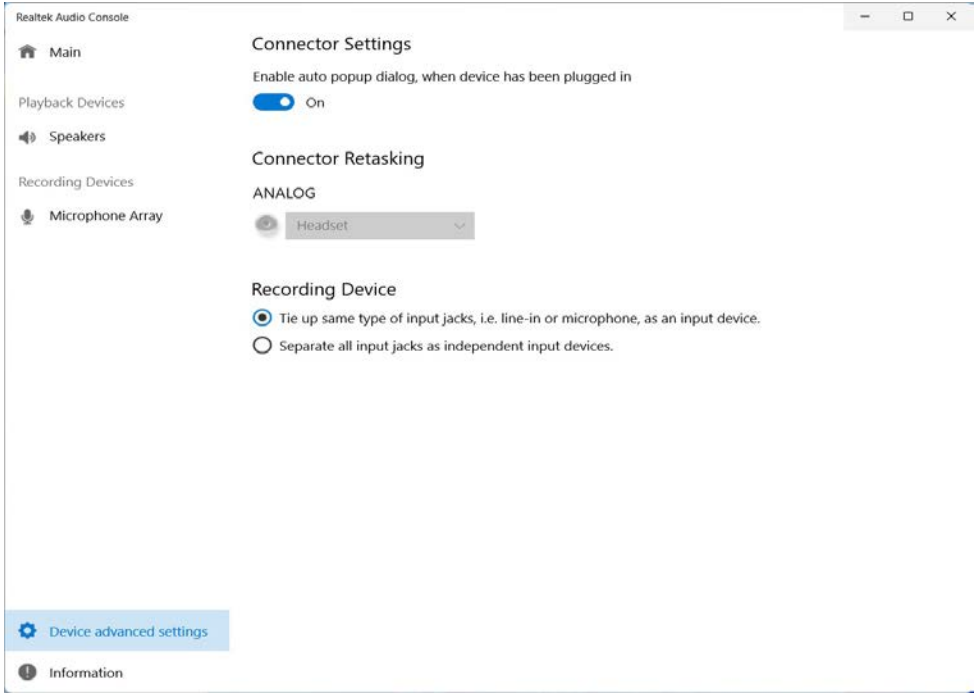


Figure 2 - 18
Realtek Audio Console - Device Advanced Settings

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
- Shutting the Computer Down
- Settings Menu Power Controls
- Power Plans
- Power-Saving States
- Configuring the Power Buttons
- Battery Information

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

OS Note

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

Forced Off

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

The Power Sources

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

AC/DC Adapter

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

1. **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 on the right of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter and the battery will now be unlocked.
2. Keep the AC/DC adapter connected to the computer to fully charge the battery to 100% capacity (the battery LED indicator will turn green).
3. Raise the lid/LCD to a comfortable viewing angle.
4. Press the power button to turn "On".

Battery

The battery allows you to use your computer while you are on the road or when an electrical outlet is unavailable. Battery life varies depending on the applications and the configuration you're using. **To increase battery life, let the battery discharge completely before recharging** (see ***"Battery FAQ" on page 3 - 24***).

We recommend that you do not remove the battery. For more information on the battery, please refer to ***"Battery Information" on page 3 - 19***.

Power Delivery with DC-In USB Port / Thunderbolt™ 4 Combo Port (Type C)

The USB 3.2 Gen 2 Type C and Thunderbolt™ 4 Combo ports, with the Power Delivery DC-In Function, allow you to use a power source, with a USB Type C cable and connector, plugged into the port to charge the computer.

Make sure any power source is appropriately certified, and complies with the USB-C PD (Power Delivery) standard specification rated at 20Vdc, 5A, or 20Vdc 3.25A.

Power Button

Note that for the power button to function the lid/ LCD must be open.

Turning On the Computer

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

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

Power Button as Stand by or Hibernate Button

You can use the OS's "Power Options" control panel to set the power button to send the system into Stand by or Hibernate mode (see your OS's documentation, or ***"Configuring the Power Buttons" on page 3 - 15*** for details).

Shutting the Computer Down

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

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

If you want to add Hibernate/Sleep to the Power Menu see ***"Adding Hibernate/ Sleep (Modern Standby) to the Power Menu" on page 3 - 16***.

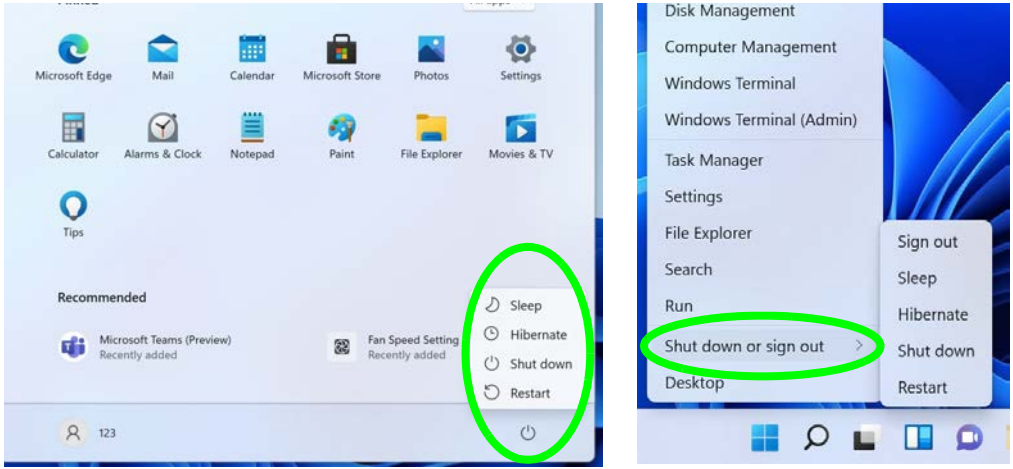


Figure 3 - 1
Shut Down/Restart

Settings Menu Power Controls

Access the **Power & battery** control panel via the **Settings** (**System > Power & battery**) item in the **Start Menu** (or via the battery icon in the **Action Center**).

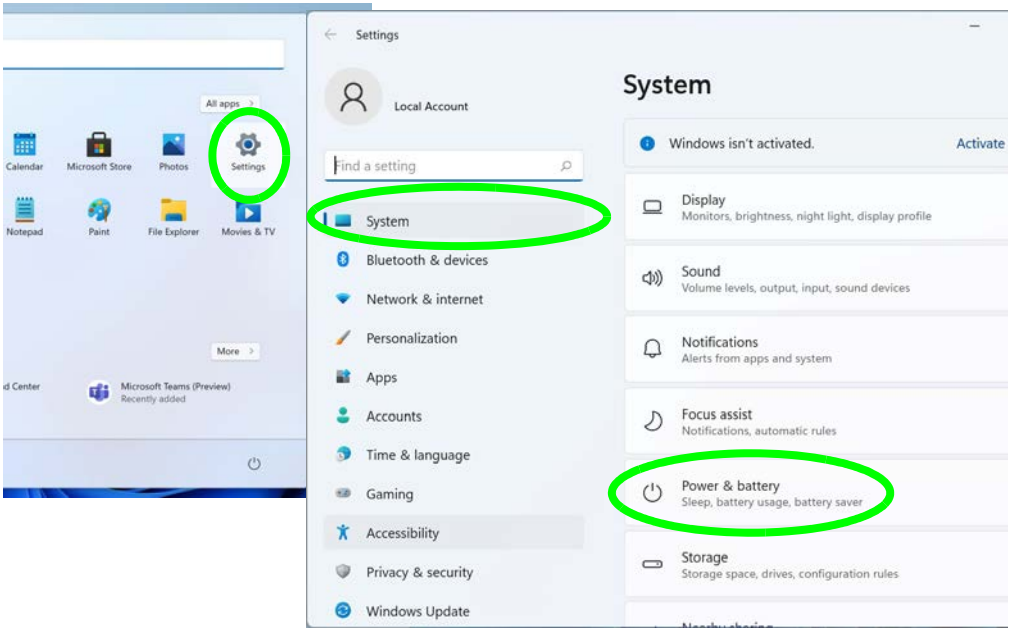


Figure 3 - 2
Settings > System (Power & Battery)

The Power & battery control panel allows you to quickly adjust power options for **Screen and sleep, Power mode, Battery saver and Battery usage** etc.

Figure 3 - 3
Power & Battery

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).

Battery Saver

Battery usage will display your battery levels and you can see the current state of battery usage by application. The **Battery saver** can be turned on when the system is battery powered, and can be set to run if the battery level falls below a certain percentage to limit background activity and push notifications.

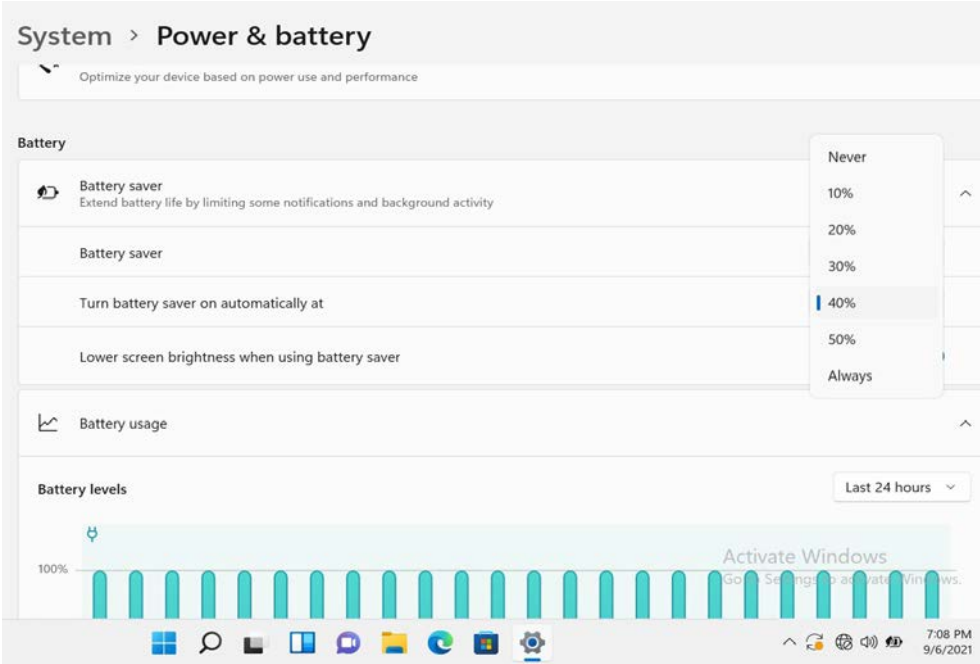


Figure 3 - 4
Settings > Battery > Battery Saver

Screen & Sleep

Screen and **Sleep** settings can be adjusted for when the system is on battery power or is plugged in.

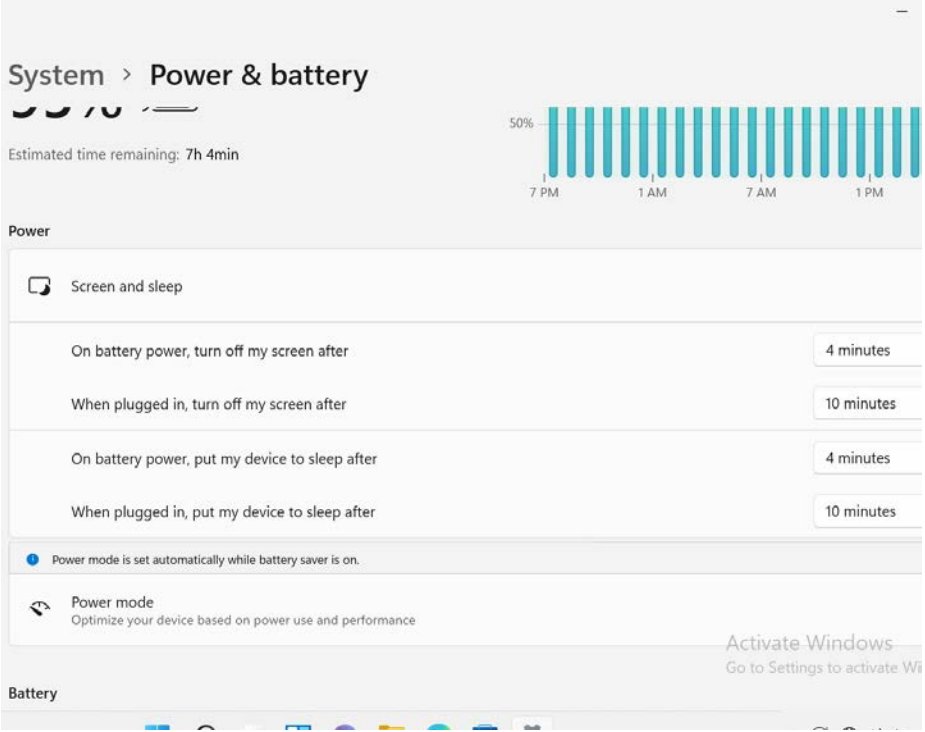


Figure 3 - 5
Settings > Screen & Sleep

Power Mode

The **Power mode** can be set to **Balanced** (default) which balances performance and battery life, **Best power efficiency** for better battery life with reduced performance, and **Best Performance** for improved performance but with greater battery consumption.

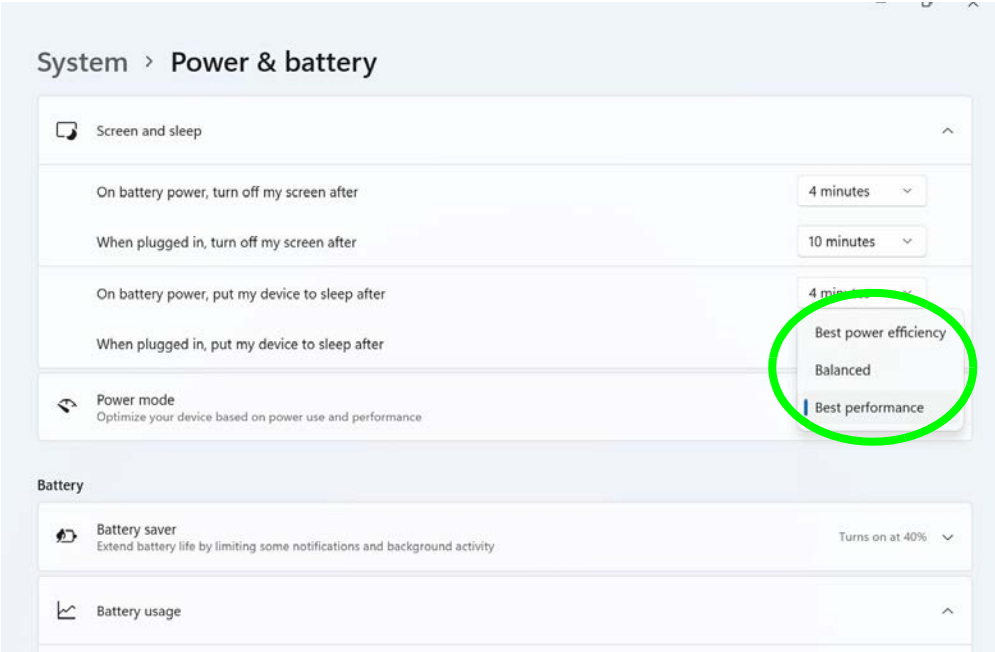


Figure 3 - 6
Power Mode

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**.

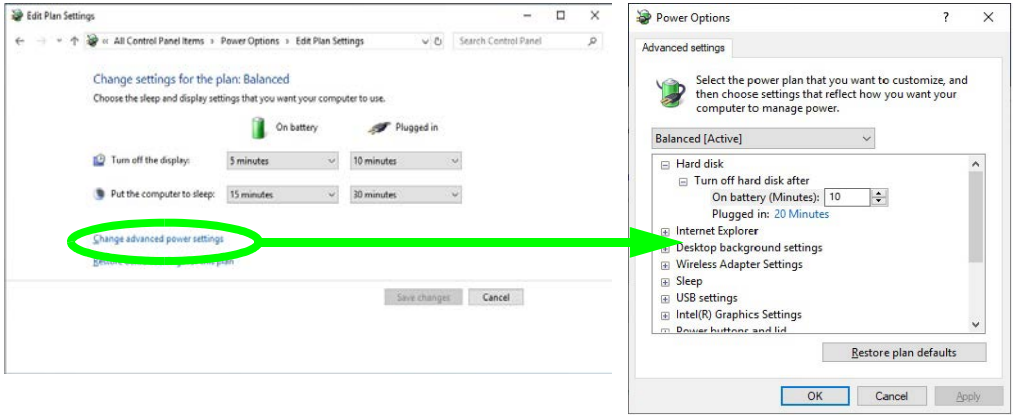


Figure 3 - 7
Power Plan Advanced Settings

Resuming Operation

See ***Table 3 - 1, on page 3 - 17*** 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.

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).

The Balanced power plan is the default, however you can click **Create a power plan** to create a customized power plan.

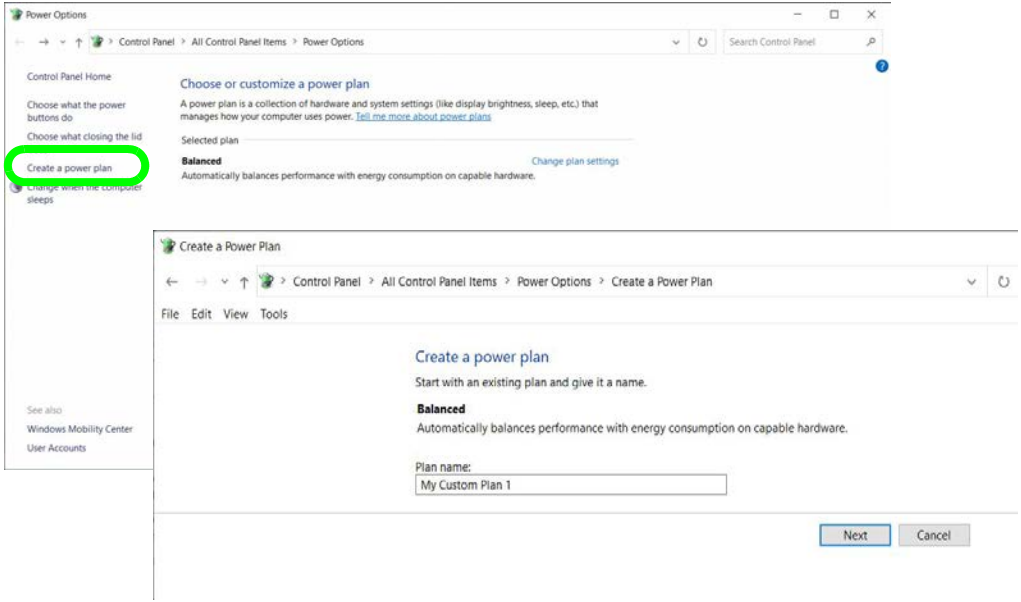


Figure 3 - 8
Power Plans

Power-Saving States

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

Sleep (Modern Standby)

This system supports **Sleep mode as Modern Standby**. In this case, the system will continue to download mail, Windows updates, calendar updates and even VoIP calls **via a Windows Store app**, even when the system is in **Sleep (Modern Standby)** mode, in much the same way as a smartphone.

In **Sleep (Modern Standby)** 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 (Modern Standby)** to save power.

The PC wakes from **Sleep (Modern Standby) 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 (Modern Standby)** 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 HDD/SSD and shut the computer down before the battery becomes depleted. To add **Sleep** (Modern Standby) to the **Power Menu** see page ***3 - 16***.

Right-Click Start Menu Power

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.

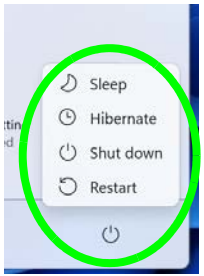
Hibernate

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 (Modern Standby) to the Power Menu" on page 3 - 16***.

Shut down

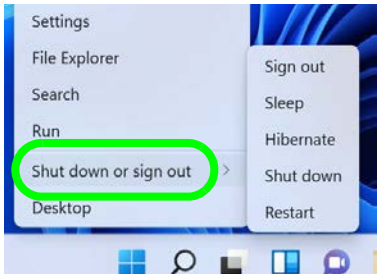
You should **Shut down** the computer if you plan to install new hardware, plan to be away from the computer for several days, or you do not need it to wake up and run a scheduled task. Returning to full operation from **Shut down** takes longer than from **Sleep** or **Hibernate**.

Figure 3 - 9
Power Button & Start Menu (Power) Shut Down or Sign Out



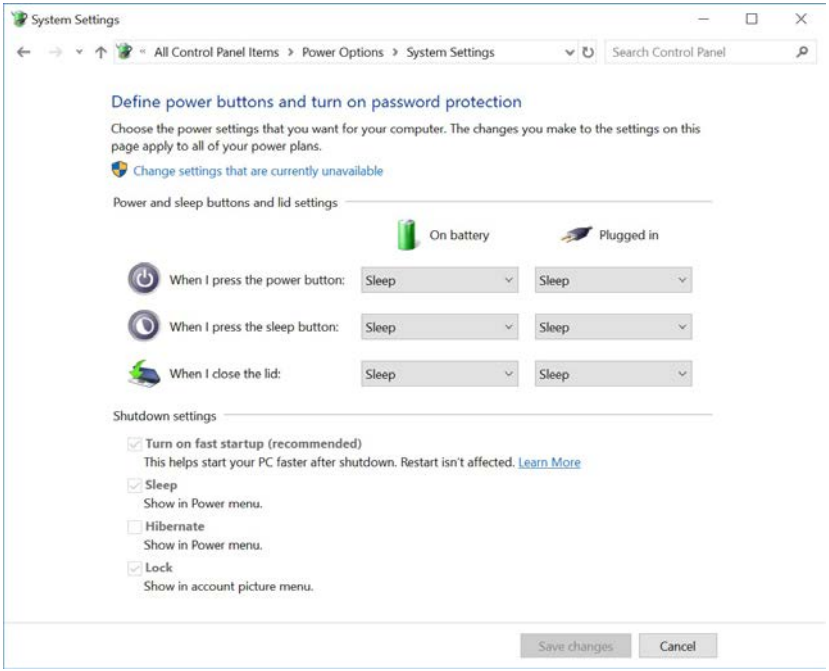
Using the Power Button

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



Configuring the Power Buttons

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



Password Protection

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

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

Figure 3 - 10
Power Options Define Power Buttons

Adding Hibernate/Sleep (Modern Standby) **to the Power Menu**

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

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

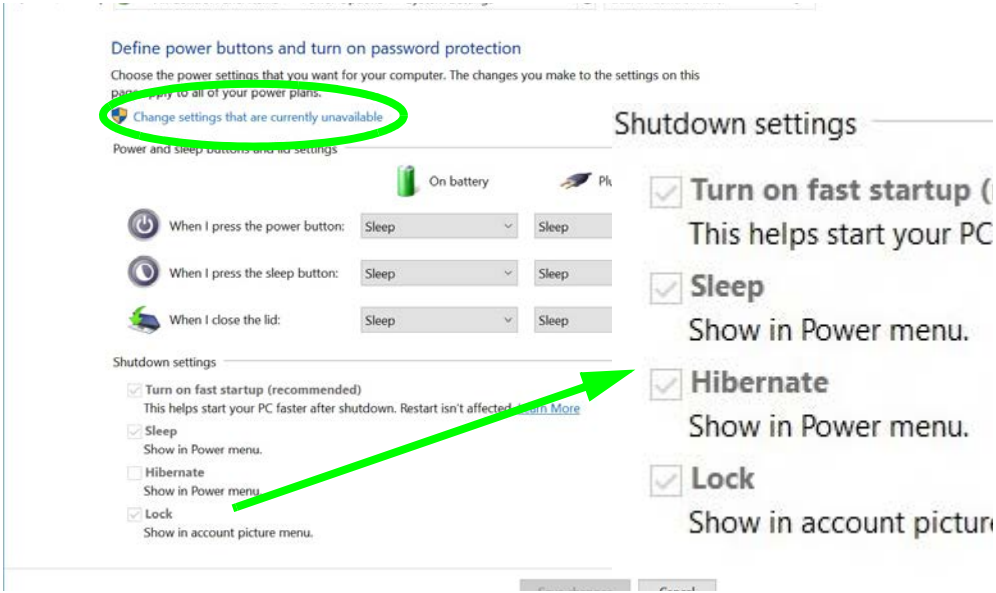


Figure 3 - 11
Power Options Define Power Buttons - Shutdown Settings

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 (Modern Standby)	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).

Closing the Lid

If you have chosen to send the computer to **Sleep (Modern Stand-by)** when the lid is closed, raising the lid will wake the system up.

Ctrl + Alt + Delete Key Combination

You can use the **CTRL + ALT + DEL** key combination from almost any of the ***Windows*** 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** (Modern Standby), **Shut down**, and **Restart**.

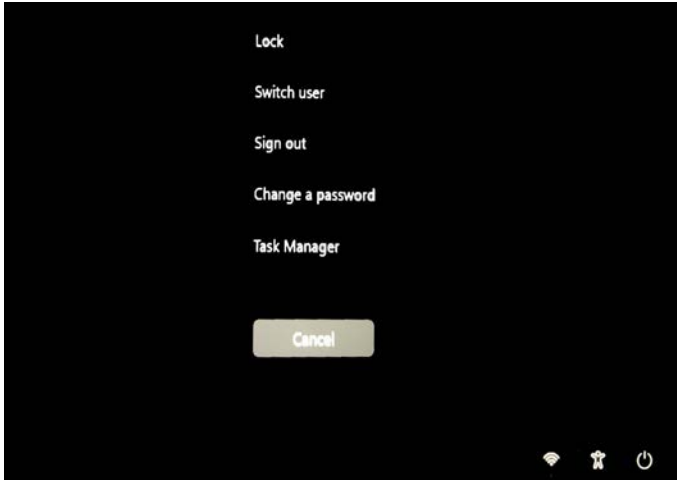


Figure 3 - 12
Ctrl + Alt + Delete Menu

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.

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**.

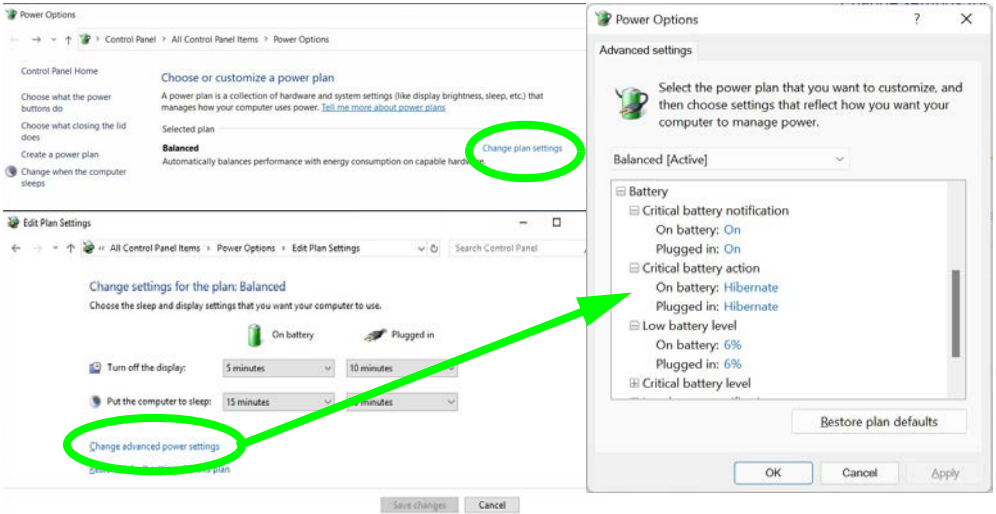


Figure 3 - 13
Power Options (Battery)

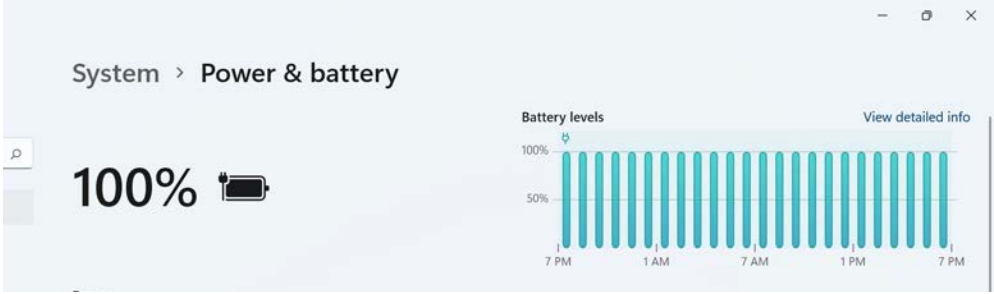
Low Battery Warning

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

3

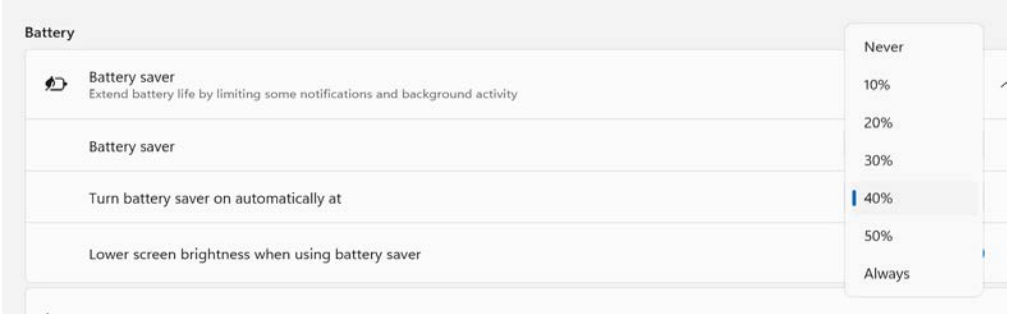
Click the battery icon in the **Action Center** to access the Power & battery control panel (see page *3 - 7*) and you can view the battery level.

Figure 3 - 14
Battery Levels



See also ***"Battery Saver" on page 3 - 8*** (which can be turned on when the system is battery powered), and you can click on **Battery usage** to view detailed battery information.

Figure 3 - 15
Battery Saver



Conserving Battery Power

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

Windows Mobility Center

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

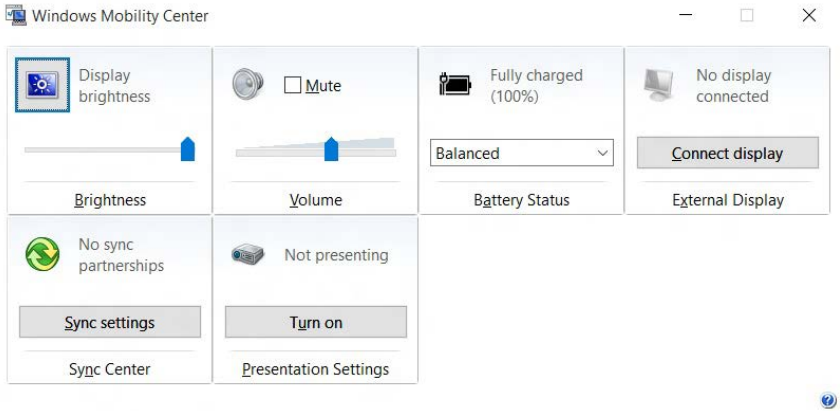


Figure 3 - 16
Windows Mobility Center (Control Panel)

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.

Charging The Battery Under Heavy Use

If the computer is being used under a heavy system load (e.g. games or other high-end graphic apps) in battery mode, **try to avoid a cycle of repeatedly plugging and unplugging the adapter to charge the battery**.

Repeatedly plugging and unplugging the adapter may cause inaccuracies in the battery mechanics when displaying battery life and charge, and this may result in a system shutdown despite the battery meter displaying a sufficient remaining charge.

Ideally, if the computer is being used under a heavy system load you should try to use the AC/DC adapter, but if using the battery avoid plugging and unplugging the adapter and allow the battery to fully charge again before switching to battery mode.

New Battery

Always completely discharge, then fully charge, a new battery (see ***"Battery FAQ" on page 3 - 24*** 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 ***Table 1 - 1, on page 1 - 8*** for information on the battery charge status, and to ***"Battery FAQ" on page 3 - 24*** for more information on how to maintain and properly recharge the battery pack.

Caution

Danger of explosion if battery is incorrectly replaced.

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

Proper handling of the Battery Pack

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

Damaged Battery Warning

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

Battery FAQ

How do I completely discharge the battery?

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

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

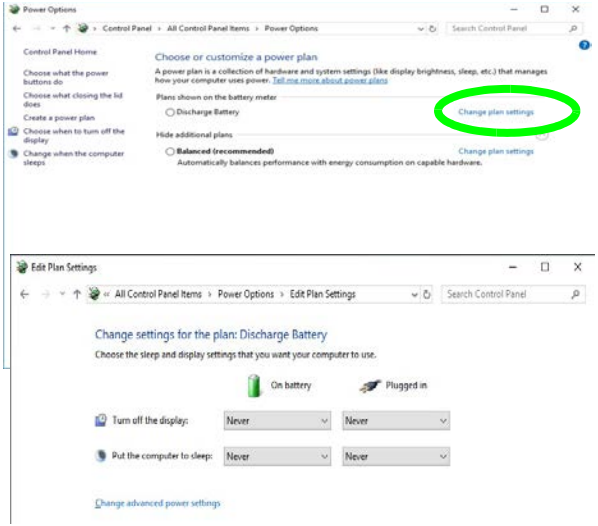


Figure 3 - 17
Change Plan Settings / Change Advanced Power Settings

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

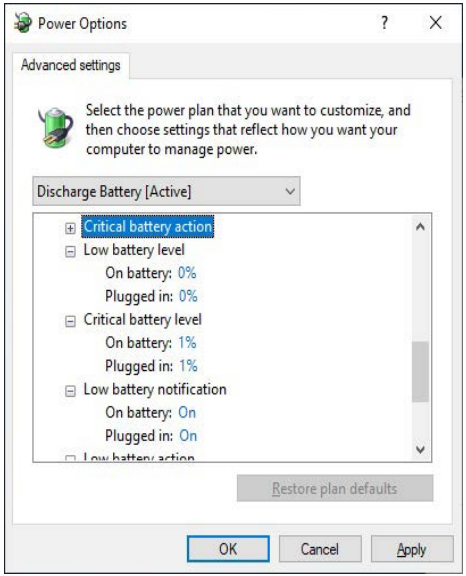


Figure 3 - 18
Power Options Advanced Settings - Battery

- Low battery level = 0%
- Critical battery level = 1%
- Low battery action = Do Nothing
- Reserve Battery Level = 0%

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

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

Chapter 4: Drivers & Utilities

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

What to Install

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

Module Driver Installation

The procedures for installing drivers for the **Wireless LAN** and **Combination Bluetooth & WLAN** modules are provided in *"Modules & Options" on page 6 - 1*.

Driver Installation & Power

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

Driver Installation

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

Figure 4 - 1 **- Drivers Installer Screen 1**

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

Figure 4 - 2 **- Install Drivers**

Win 11 Drivers (64-bit) System Required	Page #	Win 11 Drivers (64-bit) Other / Options	Page #
Chipset	*Page 4 - 7*	*Wireless LAN*	*Page 6 - 12*
Serial IO	*Page 4 - 7*	*Bluetooth*	*Page 6 - 17*
Video (VGA)	*Page 4 - 7*	*Intel® Speed Shift Technology Driver*	*Page 6 - 23*
LAN	*Page 4 - 8*	*Intel® GNA Driver*	*Page 6 - 24*
CardReader	*Page 4 - 8*	*Intel® NPU Driver*	*Page 6 - 25*
Intel® HID Filter Driver	*Page 4 - 8*	*Intel® PMT Driver*	*Page 6 - 26*
MEI Driver	*Page 4 - 8*	*Intel® TXT Driver*	*Page 6 - 27*
Control Center	*Page 4 - 8*	*Intel® Rapid Storage Technology*	*Page 6 - 28*
Intel® Dynamic Tuning Technology Driver	*Page 4 - 8*	*Webcam Module* (No driver required)	*Page 6 - 34*
Audio	*Page 4 - 9*	*Trusted Platform Module* (No driver required)	*Page 6 - 41*

Table 4 - 1 **- Driver Installation**

All drivers provided are for the Windows 11 (64-bit) operating system on the appropriate disc.

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

Manual Driver Installation

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

Latest Updates

After installing all the drivers make sure you have the latest **Windows Updates**. Go to **Settings > Windows Update** and **Check for updates**, then go to the **Microsoft Store** and click **App Settings** and enable **App updates**.

Updating/Reinstalling Individual Drivers

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

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

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

User Account Control

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

Windows Security Message

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

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

New Hardware Found

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

Driver Installation General Guidelines

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

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

Make sure any modules (e.g. WLAN or Bluetooth) are **ON (i.e. the system is not in Airplane Mode)** before installing the appropriate driver.

Driver Installation Procedure

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

Chipset

1. Click **1.Install Chipset Driver > Yes**.
2. Click **Next > Accept > Install.**
3. Click **Finish**.

Serial IO

1. Click **2.Install Serial I/O Driver > Yes**.
2. Click **Next**.
3. Click the button to accept the license agreement and click **Next**.
4. Click **Next > Next**.
5. Click **Finish**.

Video (VGA)

1. Click **3.Install Intel VGA Driver > Yes**.
2. Click **Begin Installation**.
3. Scroll down to agree to the terms and conditions and click **I agree**.
4. Click **Start**.
5. Click **Reboot Required** to restart the computer.
6. The **Intel Graphics Command Center** will download but you will need to have a working internet connection.
7. Click the **Start** menu in Windows to access the **Microsoft Store App** tile.
8. Click the **Sign in** icon and select **Library**.
9. Click **Get Updates**.
10. A list of apps being downloaded will pop-up.
11. When finished the **Intel Graphics Command Center** will appear in the **Windows Start** menu.

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

LAN

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

1. Click **4.Install LAN Driver > Yes**.
2. Click **OK** to complete the installation.

CardReader

1. Click **5.Install Cardreader Driver > Yes.**
2. Click **Next > Next > Next**.
3. Click **Close** to complete the installation.

Intel® HID Filter Driver

1. Click **6.Install HID Filter Driver > Yes**.
2. Click **OK** to complete the installation.

MEI Driver

1. Click **7.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**.

Control Center

1. Click **8.Install Ctrl Center Driver > Yes**.
2. Click **Next > Install**.
3. Click **Finish > Finish** to restart the computer.

Intel® Dynamic Tuning Technology Driver

1. Click **9.Install DTT Driver > Yes**.
2. Click **OK**.
3. The **OK** prompt will pop-up several times (around 12 times so give it time to complete), so keep clicking it until the prompt stops appearing to complete the installation of the driver.

Audio

1. Click **10.Install Audio Driver > Yes**.
2. Click **Next > Next**.
3. Click **Finish** to restart the computer.
4. The **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.
6. Click the **Sign in** icon and select **Library**.
7. Click **Get Updates**.
8. A list of apps being downloaded will pop-up.
9. When installed the **Realtek Audio Console** will appear in the **Windows Start** menu.

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.

Optional Drivers

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

Figure 4 - 3 **- Optional Drivers Installer Screen**

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

Chapter 5: BIOS Utilities

Overview

This chapter gives a brief introduction to the computer's built-in software **BIOS** (Basic Input/Output System).

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 ***BIOS***. 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.

To enter *BIOS*, turn on the computer and press F2 as the system "Boots up".

BIOS Screens

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

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

BIOS Settings Warning

Incorrect settings can cause your system to malfunction. To correct mistakes, return to *BIOS* and **Load Optimized Defaults** (press **F9**).

BIOS Menus

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

The Insyde BIOS Utility

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

As the boot process 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 the BIOS setup.

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

The **Setup BIOS Utility** tells the system how to configure itself by translating instructions from the operating system, and other software, into instructions that the computer hardware understands. manage basic features, identify installed devices and subsystems (e.g. port configuration).

Updating the BIOS / CPU

If you need to update the BIOS please contact your distributor or supplier to obtain the latest version.

After using the utility to update the BIOS (or if the CPU has been changed) you will need to **press F2 at Boot** to enter the BIOS, and then **press F9 to load the BIOS defaults**, and then **press F10 to save and exit** the settings.

After the system restarts you should press **F2** to enter the BIOS again and reset the BIOS settings to your preferences, and then save the final settings.

UEFI Boot

UEFI (Unified Extensible Firmware Interface) is an advanced firmware standard supporting fast startup.

With UEFI Boot prompts at boot to press **F2** (to access the BIOS) or **F7** (to access Boot options) 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.

To enter *BIOS*, turn on the computer and press F2 as the system "Boots up".

If the computer is already on, reboot using the **Ctrl + Alt + Delete** combination and then hold down **F2** when prompted. The ***BIOS*** main menu will appear. To see the boot options press **F7** and choose your preferred boot device.

Insyde BIOS Start Screen

On accessing the BIOS you will be presented with the Start Screen with 5 menu icons, date and time information, CPU temperature information and navigation and Help icons at the bottom of the screen.

You can use the Touchpad, an attached mouse, or the cursor/arrow keys to navigate the menus and press *Enter* to access the submenu.

Figure 5 - 1
Insyde BIOS Start Screen

Insyde BIOS Start Screen Options:

- **Continue**: Press *Enter* here or click *Continue* to carry on with the boot process and load the operating system.
- **Boot Manager**: Press *Enter* here or click *Boot Manager* to access the Boot Manager utility.
- **Boot From File**: Press *Enter* here or click *Boot From File* to select a file or device to Boot from.
- **Administer Secure Boot**: Press *Enter* here or click *Administer Secure Boot* to proceed with a Secure Boot process. This will take you to the Secure Boot screen which allows you to manage secure boot settings.
- **Setup Utility**: Press *Enter* here or click *Setup Utility* to access the BIOS settings in the Setup Utility.

Note to return to the Start Screen from any of the submenus press the *Esc* key.

Boot Manager

Figure 5 - 2
Boot Manager

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

Press Enter to access the menu, use the arrow keys to move up and down the menu, and press Enter to select a device.

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.

Boot From File / File Explorer

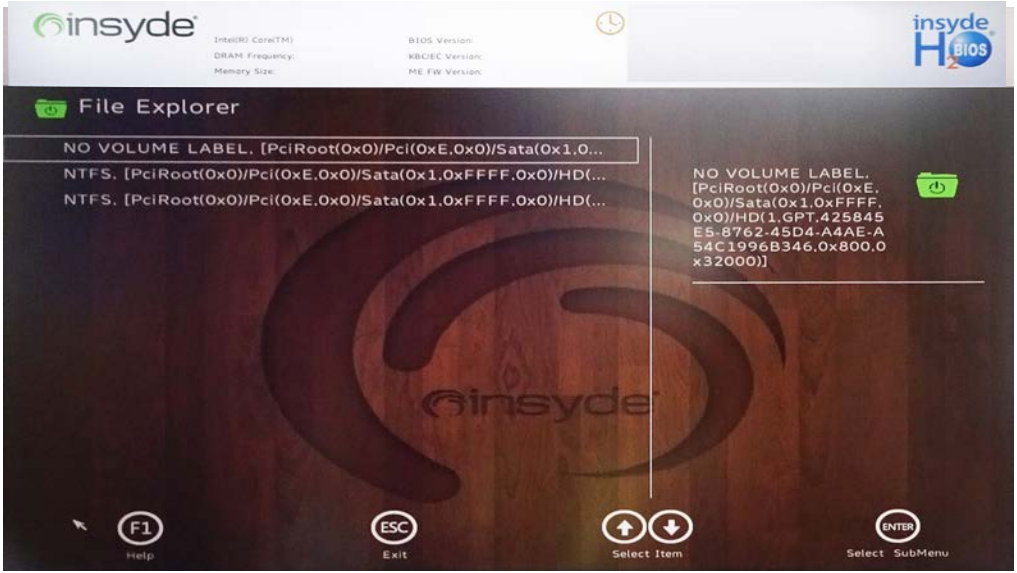


Figure 5 - 3
Boot From File (File Explorer)

If you need to boot from a file (e.g. on a USB flash drive) then access this menu and use the cursor keys to select the device or file (you can press *Enter* to explore for a file on an attached device).

Administer Secure Boot

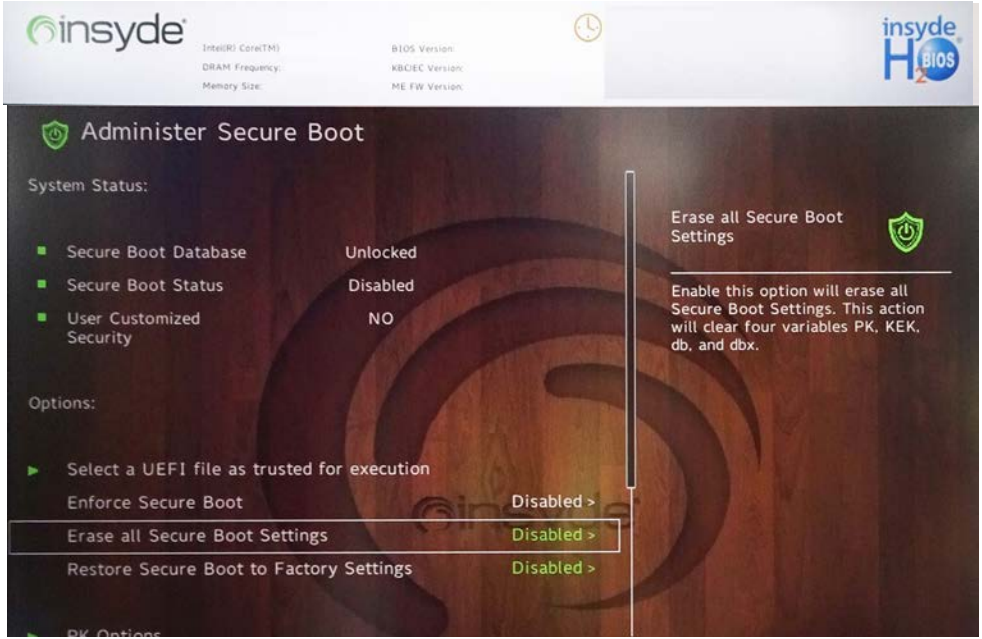


Figure 5 - 4
Administer Secure Boot

Secure Boot prevents unauthorized operating systems and software from loading during the startup process. You can select a trusted UEFI file to execute the BIOS, make sure that you Enforce Secure Boot, Erase all Secure Boot Settings or Restore the Factory Settings.

You can also make custom changes to the Key Management database if required by accessing the advanced secure boot options for Platform Key (PK Options), Key Exchange Key (KEK Options), Allowed Signatures Database (DB Options) and Forbidden Signatures Database (DBX Options).

Figure 5 - 5
Administer Secure Boot (Advanced Secure Boot Options)

Setup Utility - Main Menu

Figure 5 - 6
Main (Upper)

System Time & System 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.

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.

ME FW Version / MB Series / BIOS Revision / KBC/EC firmware Revision
This item contains information on the BIOS version and is not user configurable.

Your system's CPU will be listed in the Main menu e.g. *Intel(R) Core(TM)....*

Setup Utility - Advanced Menu

Figure 5 - 7
Advanced Menu

Advanced Menu

The Advanced menu provides settings for **Advanced Chipset Control** (see over), **Intel(R) Rapid Storage Technology** and **Enable VMD Controller**.

Advanced Chipset Control (Advanced Menu)

The sub-menu here allows you to enable/disable **Intel Trusted Execution Technology, Flexicharger**, **VT-d, UEFI OS Fast Boot, LAN Wake on S5** and **Battery Saver**.

Figure 5 - 8
Advanced Chipset Control Menu

Intel Trusted Execution Technology (Advanced Menu > Advanced Chipset Control)
Intel Trusted Execution Technology is a computer hardware technology designed to help protect against software-based attacks, and to protect the confidentiality and integrity of data stored or created on your computer.

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%).

You can then set the level to stop charging (e.g. 100%), and of course this stop charge level must be higher then the start charge level.

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

VT-d (Advanced Menu > Advanced Chipset Control)

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

FlexiCharger Warning

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

To reset this, set the FlexiCharger to "**Disabled**", and then allow the battery to completely discharge (see ***"Battery FAQ" on page 3 - 24***) before enabling the function again.

Figure 5 - 9
Advanced Chipset Control > FlexiCharger

UEFI OS Fast Boot (Advanced Menu > Advanced Chipset Control)
Use this menu item to enable/disable the Fast Boot option, which when enabled, helps reduce the time it takes to boot the computer.

Lan Wake on S5 (Advanced Menu > Advanced Chipset Control)
You can enable/disable the system's ability to wake from a power-saving state on LAN activity from this menu.

Battery Saver (Advanced Menu > Advanced Chipset Control)
When enabled *Battery Saver* can increase and extend battery life, but this can cause screen brightness to decrease.

Intel Rapid Storage Technology
When the VMD controller is enabled this menu item will become available. Make sure you install the **IRST driver**.

Enable VMD Controller (Advanced Menu)

Intel VMD (Volume Management Device) is a storage controller with hardware logic inside the CPU, and this helps manage NVMe SSDs. With VMD mode enabled the ***Intel Rapid Storage Technology*** item will be accessible.

The **VMD Mode** should be set **BEFORE installing an operating system**, and after you have backed up all necessary files and data (see sidebar).

If you wish to change your VMD mode to/from Enabled/Disabled note 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 VMD 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.

VMD Mode Selection

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

5

Security Menu

The changes you make here affect the access to the **BIOS** 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.

Setup Utility - Security Menu

Figure 5 - 10
Security Menu

Set Supervisor Password (Security Menu)

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

Note: To clear existing supervisor 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. To clear a user password just click on **Clear User Password**.

Set User Password (Security Menu)

You can set a password for user mode access to the **BIOS**. This will not affect access to the computer OS, (only the ***Setup*** utility) unless you choose to set a ***Password on Boot*** (see below). Some menu items in the **BIOS** cannot be modified in user mode.

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

Power on Password: (Security Menu)

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

Password Warning

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

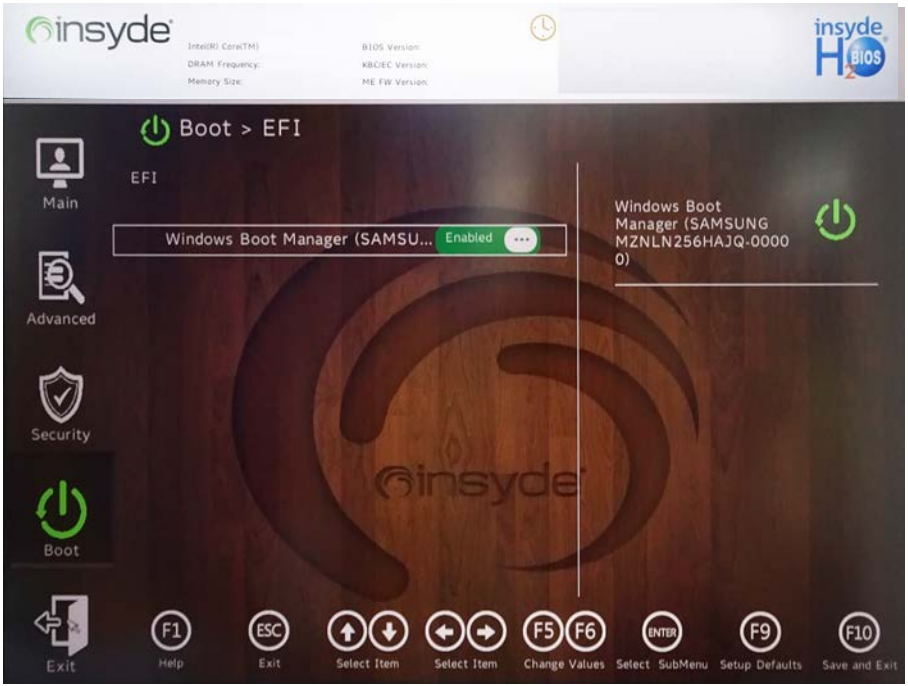
The consequences of this could be serious. If you cannot remember your boot password you must contact your vendor and you may lose all of the information on your hard disk.

TPM Configuration (Security Menu)

This sub-menu will allow you to enable/disable Trusted Platform Module (TPM) support, and to configure the TPM State. Select **TPM Configuration** and press Enter to access the sub-menu. To reset the TPM select **Clear TPM** to clear existing TPM information (see ***"Trusted Platform Module" on page 6 - 41***).

Figure 5 - 11
Security Menu
TPM Configuration

Setup Utility - Boot Menu



EFI (Boot Menu)
Press Enter to Enable/Disable any available device from which to boot under EFI.

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.

Figure 5 - 12
Boot Menu

5

UEFI Setting (Boot 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 can be enabled/disabled as an option under **UEFI Setting**.

Figure 5 - 13
UEFI Setting

Setup Utility - Exit Menu

Click ***Exit Saving Changes*** (or press **F10**) to save all changes made and exit the BIOS. Choosing ***Exit Discarding Changes*** will wipe out any changes you have made to the ***Setup*** and exit the BIOS. You can also choose to **Load Optimal Defaults** (or press **F9**) to return the ***BIOS*** to its original state, and erase any previous changes you have made in a previous session. Select **Discard Changes** to cancel any changes made in the current session.

Battery Storage Setting

You can enable **Shipping Mode** for your battery if the system is battery powered and the battery level is reduced.

In this mode 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 the battery will now be unlocked.

Figure 5 - 14
Exit Menu

Chapter 6: Modules & Options

Overview

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

- RAID Mode Setup
- Wireless LAN
- Bluetooth
- Intel® Speed Shift Technology Driver
- Intel® GNA Driver
- Intel® NPU Driver
- Intel® PMT Driver
- Intel® TXT Driver
- Intel® Rapid Storage Technology
- Webcam Module
- Trusted Platform 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** (or the system is in **Airplane Mode**) if you are using the computer aboard aircraft (see ***Table 1 - 2, on page 1 - 11***).

RAID Solid State Drives

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

VMD Mode Selection

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

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

See ***"Enable VMD Controller (Advanced Menu)" on page 5 - 17***.

RAID Mode Setup

RAID

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

Intel® Optane™ Memory and Storage Management

Make sure you install the **Intel® Optane™ Memory and Storage Management** application if you have set up your SSDs in **RAID** mode (see ***"Intel® Rapid Storage Technology" on page 6 - 28***).

After enabling the VMD controller **and installing the Intel® Rapid Storage Technology** driver, DO NOT uninstall the **Intel® Rapid Storage Technology** driver.

See ***"RAID Setup" on page 6 - 4*** for further details.

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.

Solid State Drives

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

Array Types

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

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

RAID Setup

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

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

==========

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

==========

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 **Drivers** 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\F6\Drivers**

4. Start up your notebook computer and press <F2> to enter the **BIOS** and go to the **Setup Utility**.
5. Select the **Advanced** menu.
6. Select **Enable VMD controller** (see page ***5 - 17***), and select "**Enabled**".
7. Press <F10> to "**Save and Exit**" and select <Yes> .
8. As the computer restarts press <F2> to enter the **BIOS** again and go to the **Setup Utility**.
9. Select the **Advanced** menu.
10. Go to **Intel(R) Rapid Storage Technology** (**Advanced** menu) and select "**Create RAID Volume**".

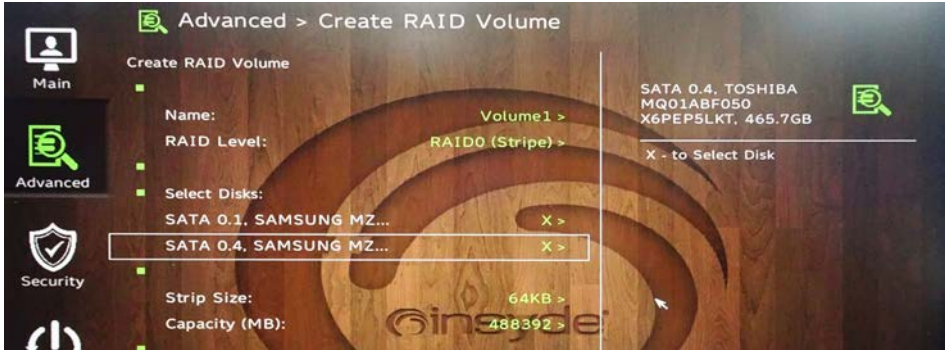


Figure 6 - 1
Create RAID Volume

11. You can now setup your RAID volume using the installed SSDs.
12. Select “**Name”** and type a name of your choice for your RAID volume and select <Yes>.

Figure 6 - 2
RAID Name

13. Select **RAID Level** and choose the RAID Level required (see ***Table 6 - 1, on page 6 - 3*** for details) and press <Enter>.

- **RAID0 (Stripe)**
- **RAID1 (Mirror)**

14. Go to any of the disks listed under "**Select Disks:"** and select a disk name.
15. Click on **X** to select the disk required.

Figure 6 - 3
Select Disks

16. You should select two identical SSDs to form your RAID volume.
17. If you have selected **RAID0** (**Stripe)** then you can adjust the "**Strip Size**" to (you can use the cursor to move up and down the menu selection) your requirements (***it is recommended that you set the*** "**Strip Size**" ***to 128KB***).
18. Select **Create Volume** (make sure you have selected your disks).
19. The system will list your RAID volume.

20. Press <F10> to "**Save and Exit**" and select <Yes>, however note the bulleted points below.

- Make sure the ***Windows*** OS DVD is in the attached DVD drive or on a USB flash 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/ USB flash drive).
- Make sure your USB Flash drive, or external USB hard disk, containing the **F6 folder** previously copied from the ***Device Drivers & Utilities + User's Manual disc*** is attached to one of the computer's USB ports.

21. Press <F2> as the computer starts up to select the drive containing the ***Windows*** OS DVD/USB flash drive as the boot device in **Boot Manager**.
22. Press a key at system startup to begin installing ***Windows*** from your ***Microsoft Windows*** drive.
23. 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).
24. If no installation drives appear "***Where do you want to Install Windows?***" window, click **Load Driver** from the menu at the bottom.
25. 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 or external USB hard disk):

- **X:\Drivers**

26. **Hold down the shift key and click to select both driver names**.

27. Click **Next**.
28. Follow the on-screen instructions to install the ***Windows*** operating system.
29. 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).
30. Run the **Intel® Optane™ Memory and Storage Management** application to manage your RAID volume as instructed in ***"IRST Driver Installation" on page 6 - 28***.

Deleting a RAID

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

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

Figure 6 - 4
Delete RAID

6. Click **Disable** and click "**Are you sure you want to disable?**" and select **Yes**.
7. The system will take some time to disable Optane and do not restart the computer until the process finishes.

Figure 6 - 5
Intel(R) Rapid Storage Technology Disable Optane

6

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 - 2, on page 1 - 11*).

Wireless LAN

If your purchase option includes the **Combination Wireless LAN & Bluetooth module** then install the driver as instructed overleaf.

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

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

See overleaf for the appropriate driver installation instructions.

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 **Next**.
5. Click in the check box to agree to the **End User License Agreement** and click **Install**.
6. Click **Finish**.
7. The operating system is the default setting for Wireless LAN control in ***Windows*** (see page ***6 - 14***).

Uninstalling The WLAN Driver

Note that if you need to uninstall the WLAN driver, and it does not appear in the *Programs and Features control panel*, you will need to do so from the Device Manager.

To uninstall the driver from Device Manager, right-click the Start Menu icon in the taskbar and select **Device Manager**. Right-click the WLAN device and then select "**Uninstall device**" (*make sure to tick the box* "**Delete the driver software for this device**") to start the process.

After the driver is uninstalled click the icon at the top of Device Manager to "Scan for hardware changes".

WLAN Configuration in Windows

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

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

Connect Automatically

It is recommended that you check the box to **Connect automatically**.

This will cause the system to check for the access point upon startup, and resuming from a power-saving state, and will remove any necessity to keep connecting manually.

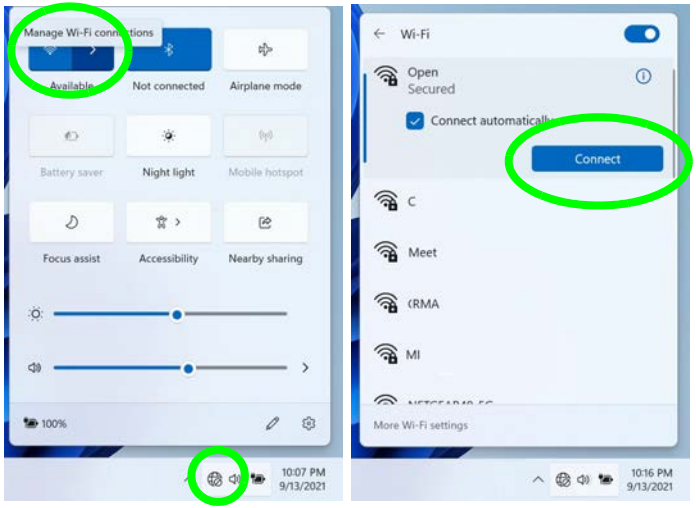


Figure 6 - 6
WiFi & Network Connections

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 its **connected** status under the name of network.
8. Select any connected network and click **Disconnect** Disconnect to disconnect from a connected access point.

Wireless Device Operation Aboard Aircraft

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

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

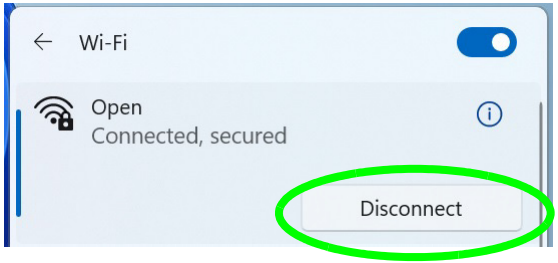


Figure 6 - 7
Network Connected (Click Disconnect)

9. You can click the **Airplane Mode** button in the Action Center 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. Click on **Network & Internet** (in **Settings**) for a more comprehensive list of network and internet settings including **Wi-Fi** (can be turned on/off), **Ethernet**, **VPN**, **Mobile Hotspot**, **Airplane mode** (Airplane mode and Wireless devices can be turned on/off) **Proxy**, **Dial-up** and **Advanced Network Settings**.

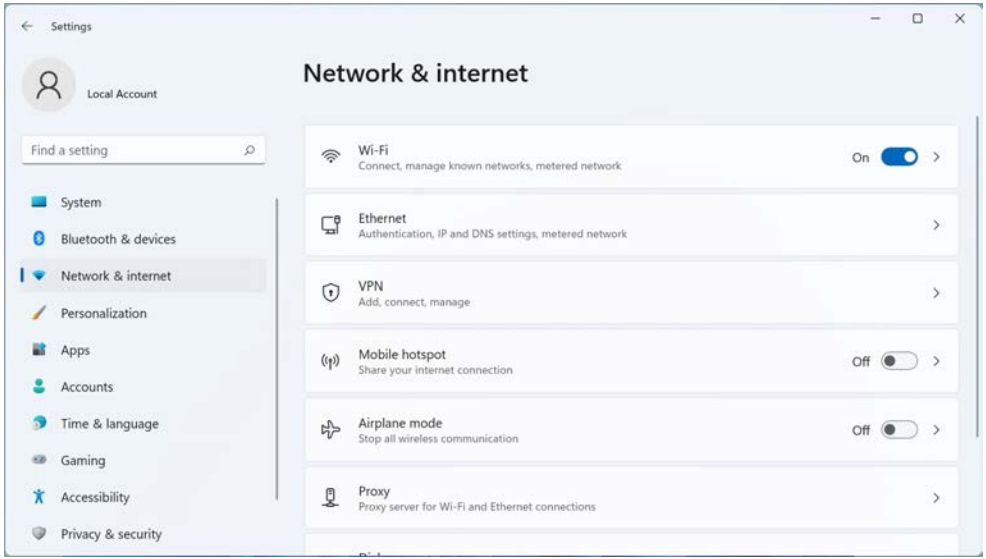


Figure 6 - 8
Network & Internet Settings

Bluetooth

If your purchase option includes the **Combination Wireless LAN & Bluetooth module** then install the driver as instructed overleaf.

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

Bluetooth Data Transfer

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

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

Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the **WLAN & Bluetooth module(s) are OFF** if you are using the computer aboard aircraft by putting the system in to **Airplane Mode** (see ***Table 1 - 2, on page 1 - 11***).

Uninstalling The WLAN / Bluetooth Combo Driver

Note that if you need to uninstall the WLAN / Bluetooth driver you will need to do so from the Device Manager (*and* ***not*** *from the Programs and Features control panel*).

Intel Bluetooth Driver Installation

1. **Make sure the system is not in Airplane Mode**, and then insert the ***Device Drivers & Utilities + User's Manual*** disc into an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **2.Install Combo BT Driver > Yes**.
4. Click **Next**.
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 - 19*** for configuration instructions.

Bluetooth Configuration in Windows

1. Go to the **Settings** control panel and click **Bluetooth & devices** (or click the Bluetooth icon in the taskbar and click **Add a Bluetooth Device**).
2. Make sure Bluetooth is **On.**
3. Click **Add device** and a list of discovered devices will appear.

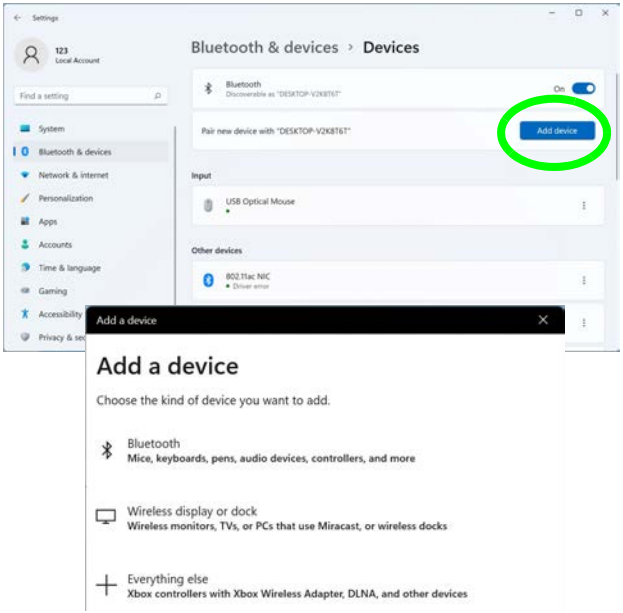


Figure 6 - 9
Settings > Bluetooth & devices (Add Device)

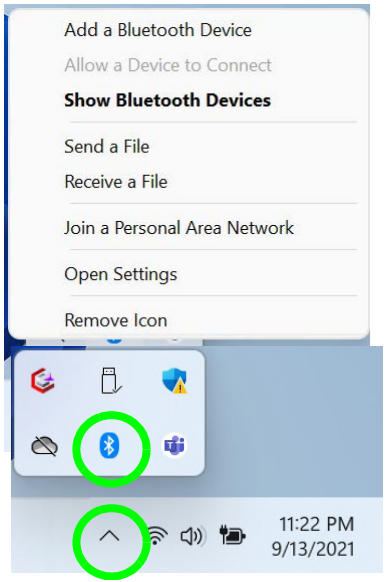


Figure 6 - 10
Add a Device

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 pair on the device)**.

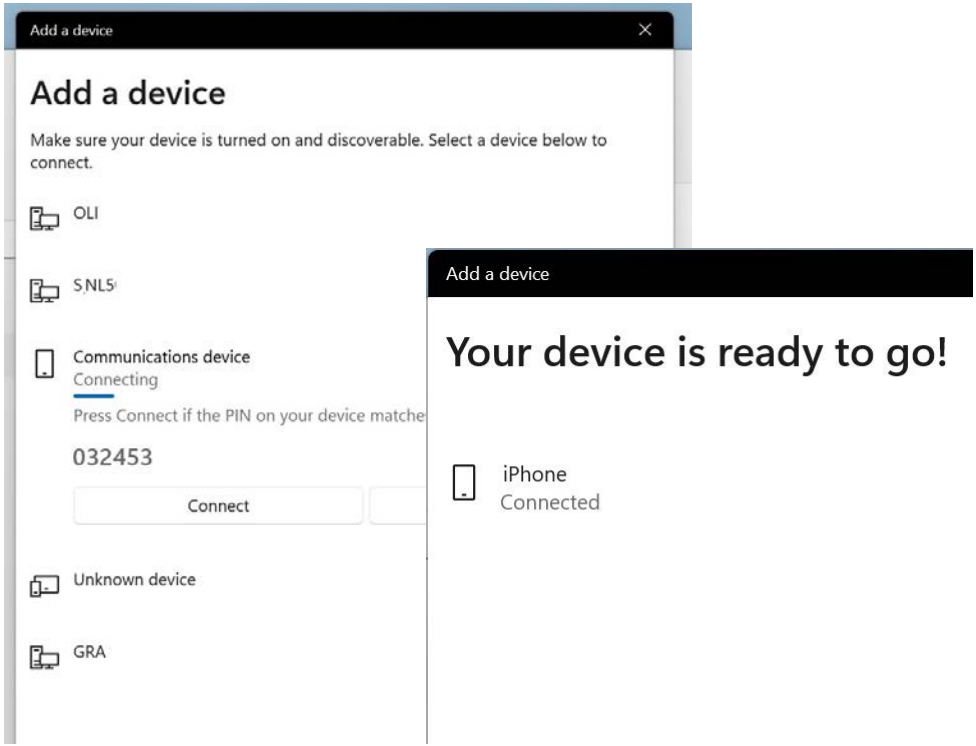


Figure 6 - 11
Bluetooth Connect

5. Select a device and click **Remove Device** Remove device to disconnect from any device (click **Yes** to confirm).

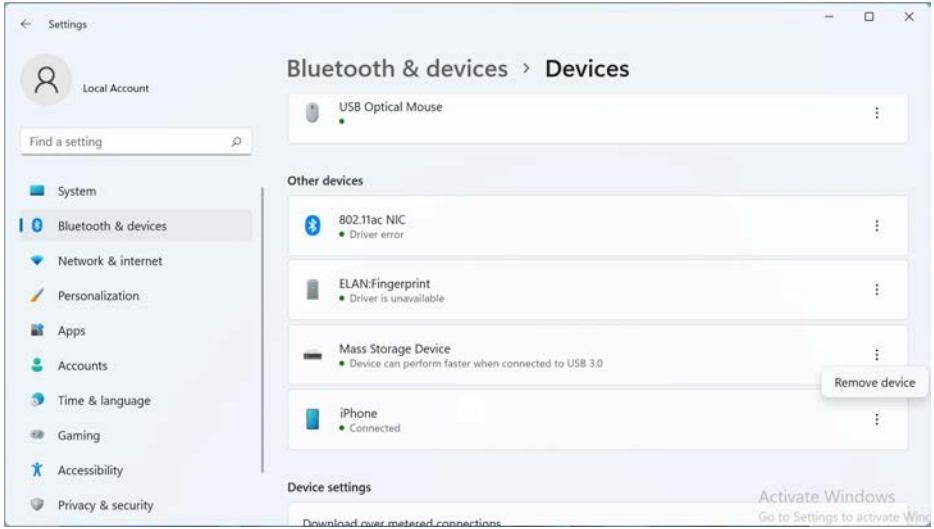


Figure 6 - 12
Bluetooth - Remove Device

6

Bluetooth Taskbar Icon

If you do not see the Bluetooth Icon in the notification area of the taskbar, click on **More Bluetooth options** and click to put a check in the box "**Show the Bluetooth icon in the notification area**."

To Make Your Computer Discoverable to Bluetooth Devices

1. Go to the **Settings** control panel and click **Bluetooth & devices** (or click the Bluetooth icon in the taskbar and click **Open Settings**).
2. Click the arrow in **Devices** and scroll down to 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.

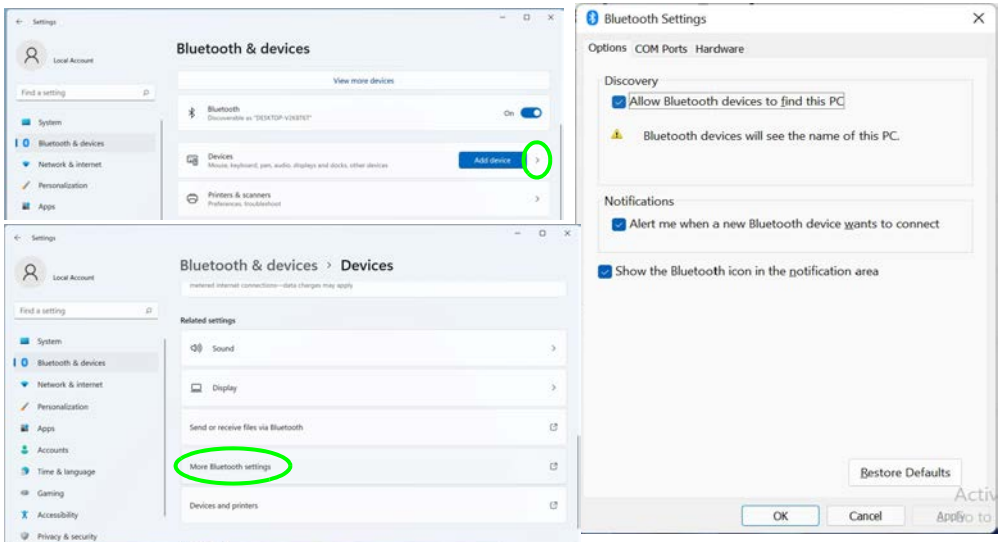


Figure 6 - 13
Bluetooth Settings

Intel® Speed Shift Technology Driver

Install the **Intel® Speed Shift Technology** driver as outlined below. Speed Shift Technology allows operating system to hand off some or all control of the handing of the computer's *P-States to the processor. This has a couple of noticeable benefits in responsiveness and the reduction of power consumption.

Speed Shift Technology Driver Installation

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **3.Install Speed Shift Driver > Yes**.
4. When the "***Is this package from a source you trust***?" message pops-up click "***Yes, add it***".
5. This will complete the installation procedure.

***P-States**

P-states are voltage-frequency pairs that set the speed and power consumption of the coprocessor.

When the operating voltage of the processor is lower, so is the power consumption.

Intel® GNA Driver

Install the **Intel® GNA Driver** for your processor. The Intel® Gaussian & Neural Accelerator (Intel® GNA) is designed to support a small coprocessor in your system that is responsible for accelerating certain Deep Learning algorithms.

Intel® GNA is designed to offload certain continuous workloads including noise reduction or speech recognition, and therefore saves power and frees up CPU resources for overall system performance and responsiveness.

Intel GNA Driver Installation

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **4.Install GNA Driver > Yes**.
4. Click **OK** to complete the installation.

Intel® NPU Driver

Install this driver to support the **Intel NPU (Neutral Processing Unit).** A neutral processing unit is a specialized microprocessor used in the acceleration of machine learning algorithms to service AI applications.

Intel NPU Driver Installation

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **5.Install Intel NPU Driver > Yes**.
4. Click **OK > OK** to complete the installation.

Intel® PMT Driver

This driver supports **Intel Platform Monitoring Technology (PMT)**, which is an interface for checking and accessing hardware monitoring capabilities on a device, and this allows for updates to systems without requiring patches to the kernel or software tools.

Intel PMT 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 PMT Driver > Yes**.
4. Click **OK** to complete the installation.

Intel® TXT Driver

Intel Trusted Execution Technology is a computer hardware technology designed to help protect against software-based attacks, and to protect the confidentiality and integrity of data stored or created on your computer.

Intel TXT Driver Installation

1. Insert the ***Device Drivers & Utilities + User's Manual*** disc into an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **7.Install TXT Driver > Yes**.
4. Click **OK** to complete the installation.

Figure 6 - 14
BIOS Setup Utility (Advanced Chipset Control Menu)

Driver Uninstall Warning

After setting the VMD mode to Intel® Optane™ and installing the IRST driver and Intel® Optane™ Memory and Storage Management application, **DO NOT uninstall the driver and application.**

Intel® Rapid Storage Technology

Install the **Intel® Rapid Storage Technology** driver to support your **BIOS set with VMD mode enabled**.

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 **8.Install IRST Driver > Yes**.
4. Click **Next**.
5. Click in the check box to accept the license and click **Next**.
6. **Next > Next**.
7. Click **Restart** to restart the computer.
8. Run the **Intel® Optane™ Memory and Storage Management application** app from the **Apps** screen.

After setting your BIOS VMD mode **and installing the Intel® Rapid Storage Technology** application, DO NOT uninstall the **IRST driver** or **Intel® Optane™ Memory and Storage Management** application.

Intel® Optane™ Memory & Storage Management

Run **Intel® Optane™ Memory & Storage Management** from the Start menu in Windows (click **All apps** and scroll down to **Intel® Optane™ Memory & Storage Management).**

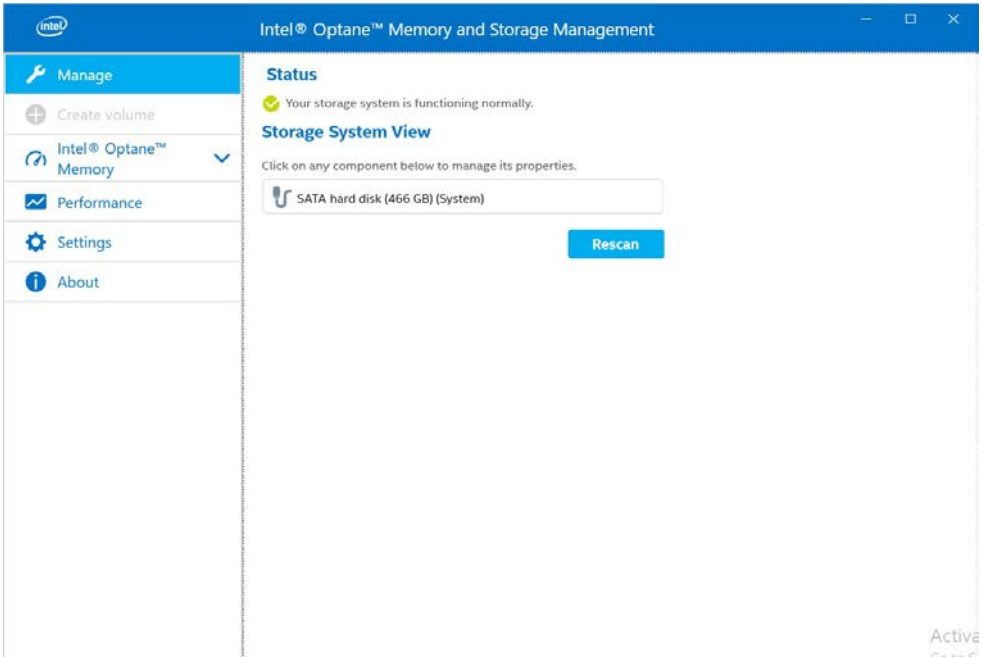


Figure 6 - 15
Intel® Optane™ Memory & Storage Management

Deleting & Creating RAID Volumes

Note that The Intel® Optane™ Memory & Storage Management application offers limited options to manage your RAID system.

If you want to delete or create RAID volumes you should use the BIOS settings to do so (see *"Create RAID Volume" on page 6 - 5*).

Intel® Optane™ Memory & Storage Management for RAID Systems

The **Intel® Optane™ Memory & Storage Management** application also displays status information on your RAID configuration. Run the **Intel® Optane™ Memory & Storage Management** from the Start menu in Windows.

When the application is launched the system will open the **Manage** window where you can view the general health of the storage system. Various volume creation and management options are available depending on the system's status.

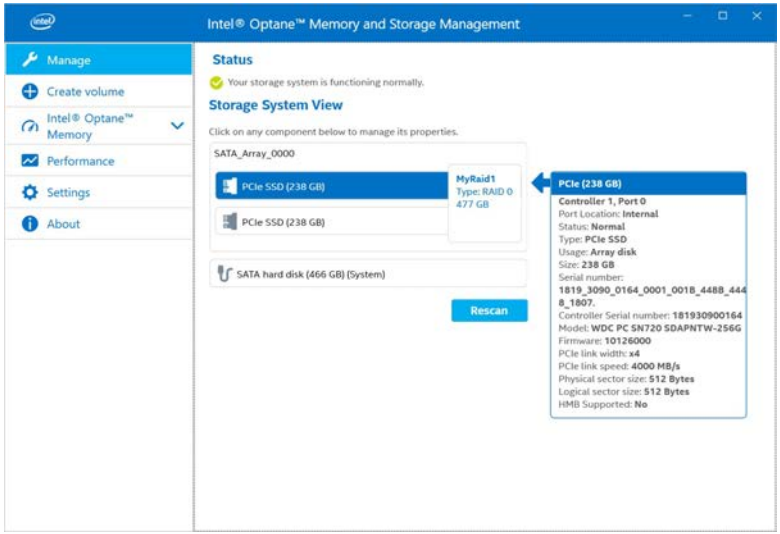


Figure 6 - 16
Intel® Optane™ Memory & Storage Management RAID Status

Intel® Optane™ Memory & Storage Management Help & Support

Click the link in ***For help and support ...*** in the **About** menu to go to the Intel support page.

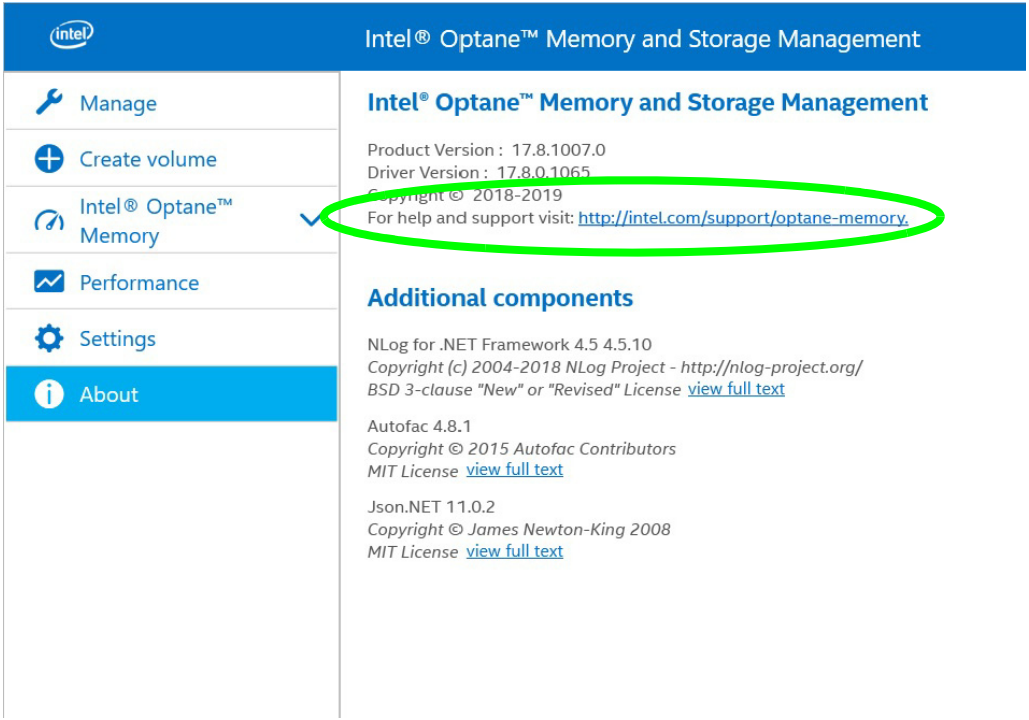


Figure 6 - 17
Intel® Optane™ Memory & Storage Management Help

Intel® Optane™ Memory & Storage Management Performance

Enable/Disable Link Power Management link management from the Performance menu. When enabled it allows the SATA host bus adapter to enter a low-power state when there is no I/O activity to save energy.

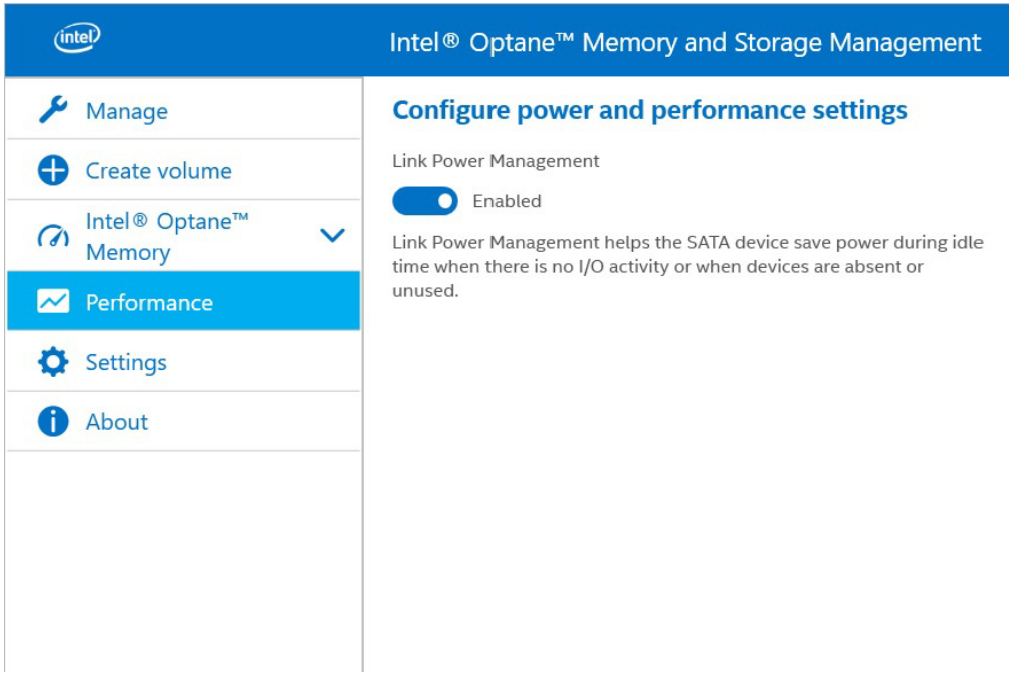


Figure 6 - 18
Intel® Optane™ Memory & Storage Management Performance

Intel® Optane™ Memory & Storage Management Settings

Enable **Automatic rebuild on hot plug** to automatically start rebuilding any degraded volume by simply hot plugging a compatible disk into the same location as any failed or missing drive. Do bear in mind the warranty terms as outlined in the sidebar, and you should contact your distributor or supplier for help in the case of degraded volumes or drives.

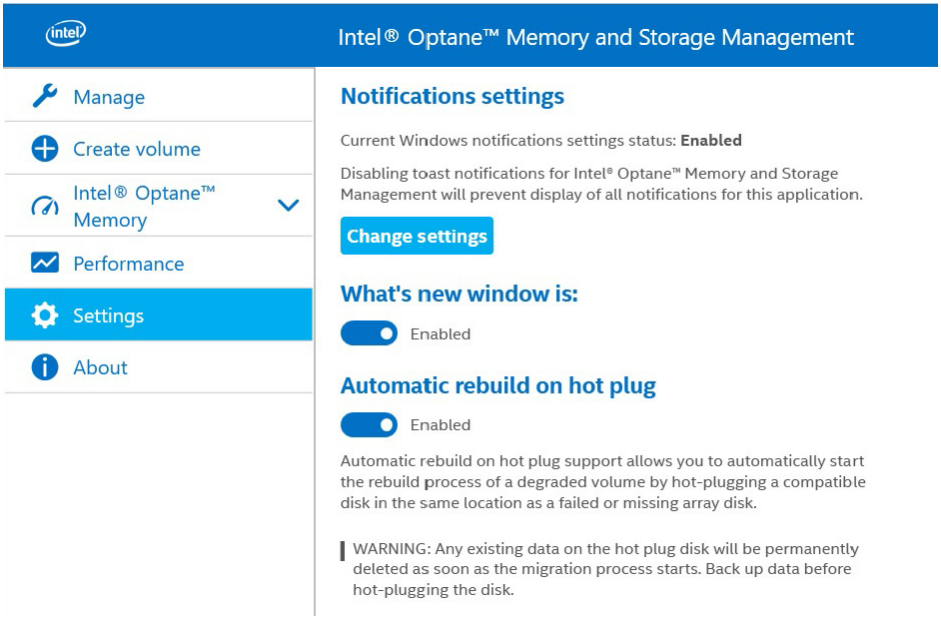


Figure 6 - 19
Intel® Optane™ Memory & Storage Management Settings

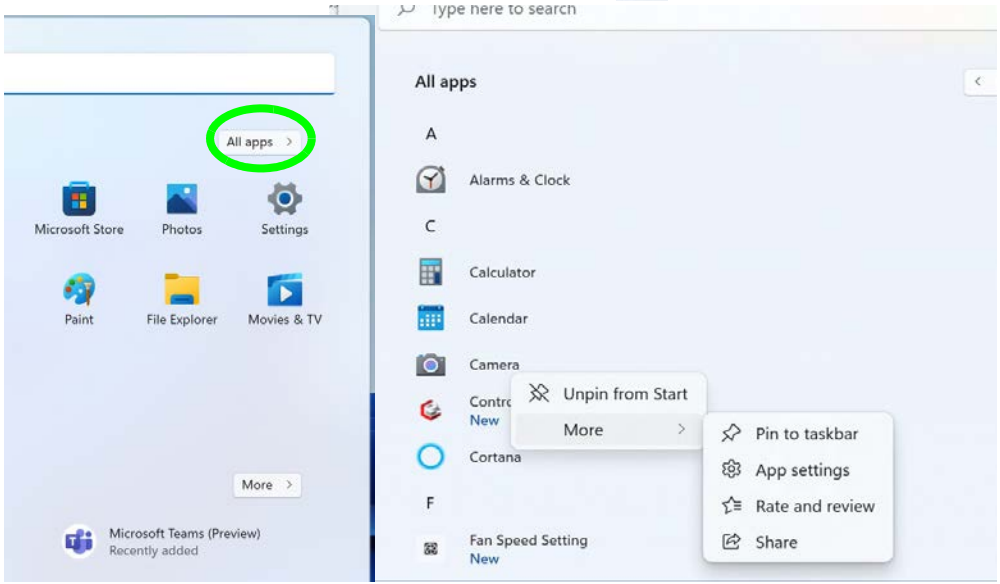
Webcam Module

When the Camera application is run the LED indicator to the left of the camera will be illuminated (see ❷ *Figure 1 - 2 on page 1 - 6*/*Figure 1 - 3 on page 1 - 7*). Note that you need to use the **Camera** app in ***Windows*** to take pictures and capture video. **Use the Fn + F10 key combination** (see *"Function/Hot Key Indicators" on page 1 - 11*) **to toggle power to the webcam module**.

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

Camera App

1. Make sure the webcam 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 All Apps and then by clicking on the **Camera** app icon (you can type “camera” into the search box to find the Camera app).
3. It is recommended that you pin the **Camera** app to the Start menu.



Camera Access

You can change the options for camera access by going to the **Privacy & Security** menu in **Settings**, and selecting **Camera** under **App Permissions**.

You can turn camera access on or off, and specify which apps have access to the camera.

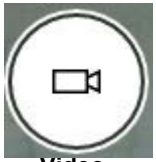
Figure 6 - 20
All Apps - Camera

6

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

Figure 6 - 21
Camera App Mode Icons

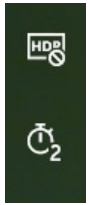
Photo


Video

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

Figure 6 - 22
Camera Menu Buttons

Auto



Pro

Auto or Pro Modes

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

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

7. 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

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 - 23
Camera Settings

8. With the **Pro mode** selected (in Settings) you can access the **Brightness** button to adjust the brightness.
9. In **Auto mode** you can toggle **HDR** on (**Pro**) or off.

Figure 6 - 24
Camera Brightness Adjustment (Pro mode)

Taking Pictures/Capturing Video

1. Make sure the webcam 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. Click to select either **photo** or **video** modes.
4. Click the photo icon to take a picture.
5. Click on the video 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 button (you can also pause the video capture).

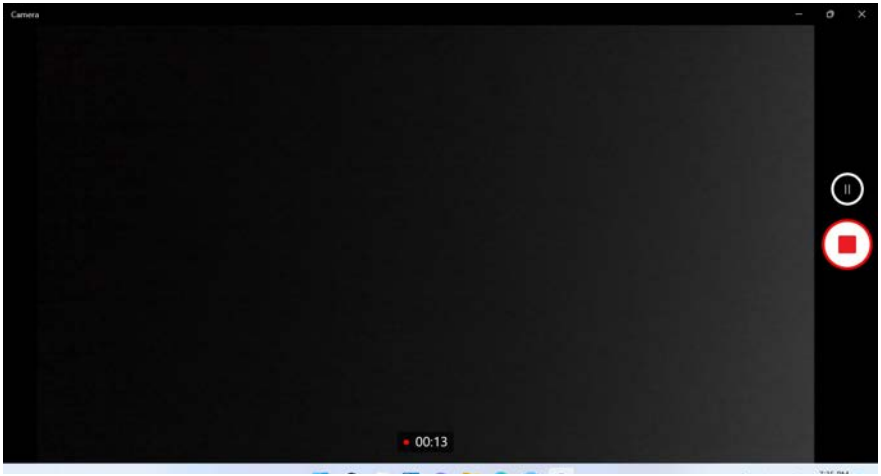


Figure 6 - 26
Video Camera Recording in Process

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.

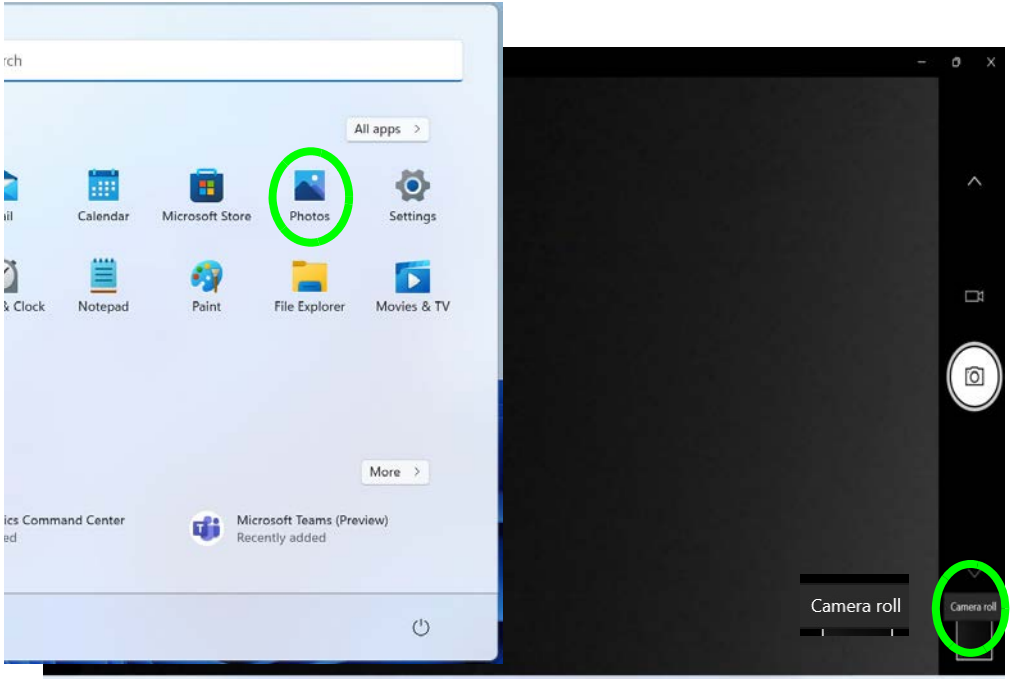


Figure 6 - 27
Photos App (For Captured Photos & Videos) & Camera Roll in the Camera App

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.

Clearing TPM Information

You can click **Clear TPM,** which will toggle the setting between **Enabled/Disabled.** If set to **Enabled** this will clear existing TPM information in order to reset the TPM.

Enabling & Activating TPM

1. Restart the computer.
2. Enter the **BIOS** pressing **F2** during the POST/startup.
3. Click to enter the **Setup Utility** and select the **Security** menu.
4. Click **TPM Configuration** and select **Enable** for **Security Device Support**.
5. You will then need to save the changes and restart the computer.

Figure 6 - 28
Security - Trusted Computing

TPM Management in Windows

You can manage your TPM settings from within ***Windows***: 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. Go to the **Control Panel**.
2. Click **BitLocker Drive Encryption** (**System and Security**).
3. Click **Turn on Bit Locker**.

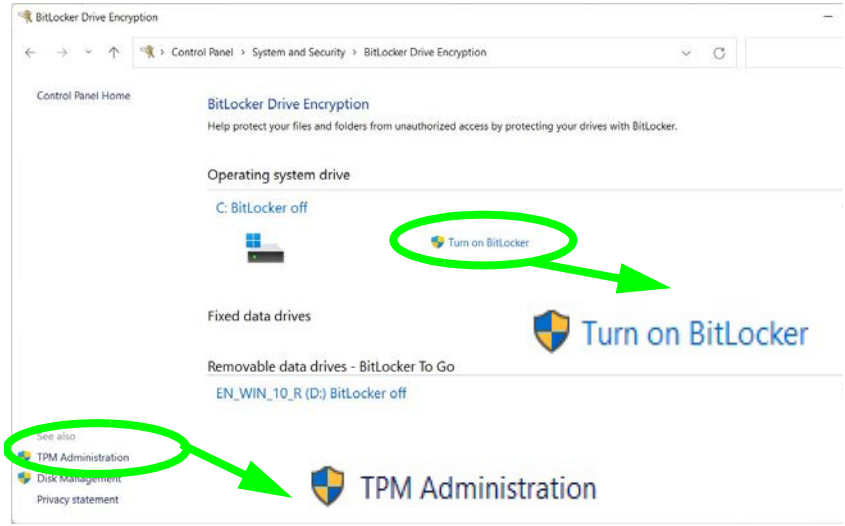


Figure 6 - 29
BitLocker Drive Encryption (TPM Administration)

4. 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.
5. Click **TPM Administration**.
6. 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.

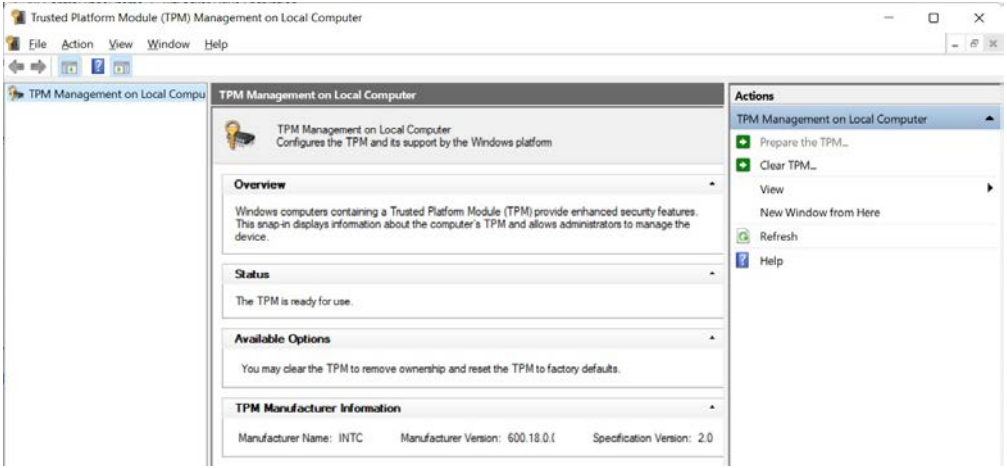


Figure 6 - 30
TPM Administration

7. 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).

Chapter 7: Troubleshooting

Overview

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

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

Basic Hints and Tips

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

- **Power** - Is the computer actually plugged into a working electrical outlet? If plugged into a **power strip**, make sure it is actually working. Check the **LED Indicators** (see ***"LED Indicators" on page 1 - 8***) to see the computer's power status.
- **Connections** - Check all the **cables** to make sure that there are no **loose connections** anywhere.
- **Power Savings** - Make sure that the system is not in **Hibernate** or **Sleep** mode by pressing the keys configured in your P*ower Options* (see ***"Power-Saving States" on page 3 - 13***), 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.
- **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 **Supervisor** password for the BIOS (see ***"Setup Utility - Security Menu" on page 5 - 18***).

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

Warranty

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

Viruses

- Install an **Anti-Virus** program and keep the **definitions file** (the file which tells your program which viruses to look for) up to date. New computer viruses are discovered daily, and some of them may seriously harm your computer and cause you to lose data. **Anti-Virus** programs are commercially available and the **definitions file updates** are usually downloadable directly from the internet.

- Be careful when opening e-mail from sources you don't know. **Viruses** are often triggered from within **e-mail attachments** so take care when opening any attached file. You can configure most **Anti-Virus** programs to check all **e-mail attachments**. **Note**: You should also beware of files from people you know as the virus may have infected an **address book** and been automatically forwarded without the person's knowledge.

- Keep a "**Bootable CD-ROM/DVD-ROM/USB storage device**" (this CD/DVD/USB device provides basic information which allows you to startup your computer) handy. You may refer to your OS's documentation for instructions on how to make one, and many **Anti-Virus** programs will also provide such a disk (or at least instructions on how to make one).

Upgrading and Adding New Hardware/Software

- Do not be tempted to make changes to your **Windows Registry** unless you are very sure of what you are doing, otherwise you will risk severely damaging your system.

- Don't open your computer or undertake any repair or upgrade work if you are not comfortable with what you are doing.

- Read the **documentation**. We can assume, since you are reading this that you are looking at the computer's manual, but what about any new peripheral devices you have just purchased? Many problems are caused by the installation of new hardware and/or software. Always refer to the documentation of any new hardware and/or software, and pay particular attention to files entitled "**READ ME**" or "**READ ME FIRST**".

- When installing a new device always make sure the device is powered on, and in many cases you will need to restart the computer. Always check that all the cables are correctly connected.

- Make sure you have installed the **drivers** for any new hardware you have installed (latest **driver files** are usually available to download from vendor's websites).

Troubleshooting

- Thoroughly check any **recent changes** you made to your system as these changes may affect one or more system components, or software programs. If possible, go back and undo the change you just made and see if the problem still occurs.
- Don’t over complicate things. The less you have to deal with then the easier the source of the problem may be found; **Example** - if your computer has many devices plugged into its ports, and a number of programs running, then it will be difficult to determine the cause of a problem. Try disconnecting all of the devices and restarting the computer with all the peripheral devices unplugged. A process of elimination (adding and removing devices and restarting where necessary) will often find the source of a problem, although this may be time consuming.

Problems and Possible Solutions

Problem	Possible Cause - Solution
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 - 11***) 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 pages ***3 - 24*** to ***3 - 26***). *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.
The computer feels **too hot**.	Make sure the computer is properly ventilated and the Vent/Fan intakes are not blocked. If this doesn't cool it down, put the system into **Hibernate** mode or turn it off for an hour. Make sure the computer isn't sitting on a thermal surface. Make sure you're using the correct adapter. 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.

Problem	Possible Cause - Solution
The **system will not start up** when it is being operated in **a low temperature environment**.	**This is due to the electrical characteristics of battery cells at low temperatures.** Although the lowest operational temperature tolerance of the system is listed at 5°C, however if the system is in DC mode (on battery), the battery must have a remaining charge capacity of 60%+; at 10°C or above.
Nothing appears on screen.	*The system is in a power saving mode*. Toggle the sleep/resume key combination, **Fn + F4** (see ***"Configuring the Power Buttons" on page 3 - 15***). *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 B*** for instructions on installing and configuring the video driver.
When **playing a video in Media Player**, while using a **4K pane**l, the counting timer area at the **bottom of the screen appears to be cut off slightly**.	*The size of text, apps and other items in **Settings > System > Display** is set to **250%**.* In this case it is recommended that the setting should be **less than 250%**.

Problem	Possible Cause - Solution
When you are **playing a game** and you use the **Windows Key** to switch to the desktop **an error message, or Blue Screen, occurs.**	*This is a DirectX compatibility issue.* In this case disable DirectX from within the game controls.
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.
Password Warning If you choose to set a boot password, **NEVER** forget your password. The consequences of this could be serious. If you cannot remember your boot password you must contact your vendor and you may lose all of the information on your hard disk.	
The sound cannot be heard or the **volume is very low**.	*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/Hot Key Indicators" on page 1 - 11***) to adjust.
There is **no sound from the Microphone**.	*The microphone volume is toggled off or is too low.* Check the microphone setting in **Settings > System > Input** in Windows, or use the key combination **Fn + 4** (see ***"Function/Hot Key Indicators" on page 1 - 11***) to toggle the microphone on/off.

Problem	Possible Cause - Solution
Unwelcome numbers appear when typing.	*Num Lock is turned **ON***.
I am sliding my finger up and down on the right side of the **Clickpad to scroll** a Window and the **Clickpad does not respond**.	*There are different Clickpad versions available on this computer, and this version requires tapping/holding to scroll.* Either tap repeatedly, or hold the finger down, at the top or bottom right of the Clickpad (depending on the scrolling direction required) to scroll the window.

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.

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 + F4**) key combination, or press the power button if no LEDs are lit.
The **screen appears to be upside down**.	*The screen rotation feature has been enabled*. Use screen rotation (**Fn + R**) key combination to rotate the screen again.

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 - 13***). Make sure you have enabled **Hibernate** mode from the control panel.
I am trying to **uninstall a driver** (e.g. the Intel Graphics driver) but it **does not appear in the Programs and Features** control panel in Windows.	*If this is the case, the* ***driver will need to be removed*** *from the* ***Device Manager***. Not all driver installation processes create an entry in Add or Remove Programs. If it does not appear in the Programs and Features Control Panel, go to Device Manager, select the hardware item (you may need to click on it to expand the sub-menu), right-click the driver name, and select **uninstall device > Uninstall**. Follow the on-screen instructions and then re-install the driver as required.
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**.
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.

Problem	Possible Cause - Solution
The **Wireless LAN/Bluetooth** modules cannot be detected.	*The modules are off as the computer is in **Airplane Mode**.* Go to the **Charms Bar** and select **Settings** and then click the WiFi icon (Airplane mode should be Off).
The **Webcam** module cannot be detected.	*The module is off.* Press the **Fn + F10** key combination in order to enable the module (see ***"Function/Hot Key Indicators" on page 1 - 11***). 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 ***"Modules & Options" on page 6 - 1***).
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.

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.
A file being copied to/from a connected **Bluetooth** device appears to be **transferring very slowly**.	*You may have the **Bluetooth control panel** (Bluetooth & devices) **open**.* When transferring data between the computer and a Bluetooth enabled device, **make sure that the Bluetooth control panel is closed**.

Appendix A: Interface (Ports & Jacks)

Overview

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

Notebook Ports and Jacks

Item	Description
2-In-1 Combo Audio Jack Headphone/Microphone	**Headphone / Microphone** **Headphones, headsets, microphones** or **speakers** may be connected through this jack. **Note**: Set your system's volume to a reduced level before connecting to this jack. Plug an external **microphone** in to this jack to record on your computer.
MicroSD Push-Push Card Reader	The card reader allows you to use some of the latest microSD digital storage cards. Push the card into the slot and it will appear as a removable device. The compatible microSD card formats are listed below: • microSD / microSDHC / microSDXC
DC-In Jack	Plug the supplied AC/DC adapter into this jack to power your computer.
HDMI-Out Port	The HDMI-Out (**High-Definition Multimedia Interface**) is an audio/video connector interface for transmitting uncompressed digital streams. This allows you to connect an external monitor, TV or Flat Panel Display etc. as a display device by means of a HDMI cable. **Note that HDMI carries both audio and video signals**.
RJ-45 LAN Jack	This port supports LAN (Network) functions (you will need to open the cover slightly before inserting a LAN cable). **Note**: Broadband (e.g. ADSL) modems usually connect to the LAN port.

Item	Description
Security Lock Slot	To prevent possible theft, a Kensington-type lock can be attached to this slot. Locks can be purchased at any computer store.
Thunderbolt™ 4 Combo Port with Power Delivery DC-In	This Thunderbolt 4 port allows for the connection of external peripherals to the computer by combining PCI Express (PCIe), DisplayPort (DP), USB and its own Thunderbolt 4 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. **The Thunderbolt™ 4 Type C port supports Power Delivery with DC-In. This port allows you to use a power source, with a USB Type C cable and connector, plugged into the port to charge the computer. Make sure any power source complies with the USB-C PD (Power Delivery) standard specification rated 20Vdc, 5A, or 20Vdc 3.25A.** **Thunderbolt Port Devices** When plugging a device into a Thunderbolt port allow 30 seconds for the system to scan and recognize the connected device. 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 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.

A

Item	Description
USB 3.2 Gen 1 Type A Port USB 3.2 Gen 2 (Type A) Port with AC/DC Powered Function) USB 3.2 Gen 2 (Type C) Port with Power Delivery DC-In	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). USB ports capable of 5Gbps (SuperSpeed) are classified as USB 3.2 Gen 1, and USB 3.2 (Gen 2) ports are capable of 10Gbps (SuperSpeed USB 10Gbps). This model includes 1 * USB 3.2 Gen 1 (Type A) port, 1 * USB 3.2 Gen 2 (Type A) Port with AC/DC Powered Function, 1 * USB 3.2 Gen 2 (Type C) port with Power Delivery DC-In and 1 * Thunderbolt™ 4 combo port (Type C) with Power Delivery DC-In. Note: The maximum amount of current supplied by the **USB ports is 900 mA for USB 3.2 & Type C**. The maximum amount of current supplied by the **Thunderbolt™ 4 port is 5V/3A in AC mode or DC mode**. **The USB 3.2 Gen 2 Type C and Thunderbolt™ 4 Combo ports, with the Power Delivery DC-In Function**, allow you to use a power source, with a USB Type C cable and connector, plugged into the port to charge the computer. **Make sure any power source is appropriately certified, and complies with the USB-C PD (Power Delivery) standard specification rated at 20Vdc, 3.25A, or 20Vdc 5A.** *Note:* The **powered USB 3.2 Gen 2 port** 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 - 11*). Toggle power to this port by using **Fn + power button**.

Appendix B: Video Driver Controls

Intel Video Driver Installation

1. Click **3.Install Intel VGA Driver > Yes**.
2. Click **Begin Installation**.
3. Scroll down to agree to the terms and conditions and click **I agree**.
4. Click **Start**.
5. Click **Reboot now** to restart the computer.
6. The **Intel Graphics Command Center** will download but you will need to have a working internet connection.
7. Click the **Start** menu in Windows to access the **Microsoft Store App** tile.
8. Click the **Sign in** icon and select **Library**.
9. Click **Get Updates**.
10. A list of apps being downloaded will pop-up.
11. When finished the **Intel Graphics Command Center** will appear in the **Windows Start** menu.

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

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.

DVMT Notes

DVMT is not local video memory.

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

B

Configure Other Displays Using Project

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

1. Attach your external display(s) to the appropriate port, and turn it(them) on.
2. Press the ⊞ **+ P** (or **Fn + F7**) 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. Press the ⊞ **+ K** key combination, or, go to the **Display** settings menu and select **Connect to a wireless display** and then click **Connect**..

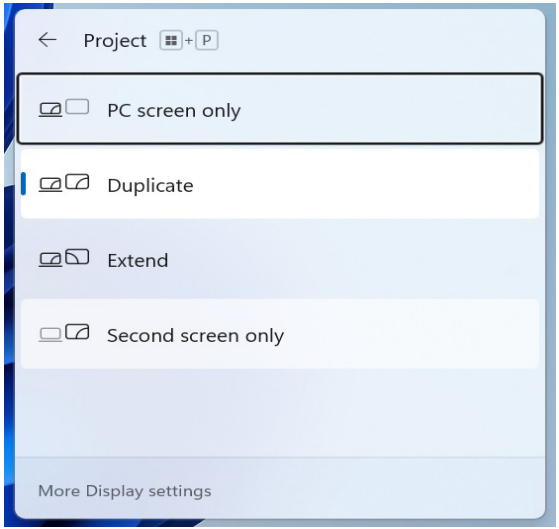


Figure B - 1
Project

Configuring an External Display In Windows

The **System > Display** Control Panel in **Settings** can 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 > Display** (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.

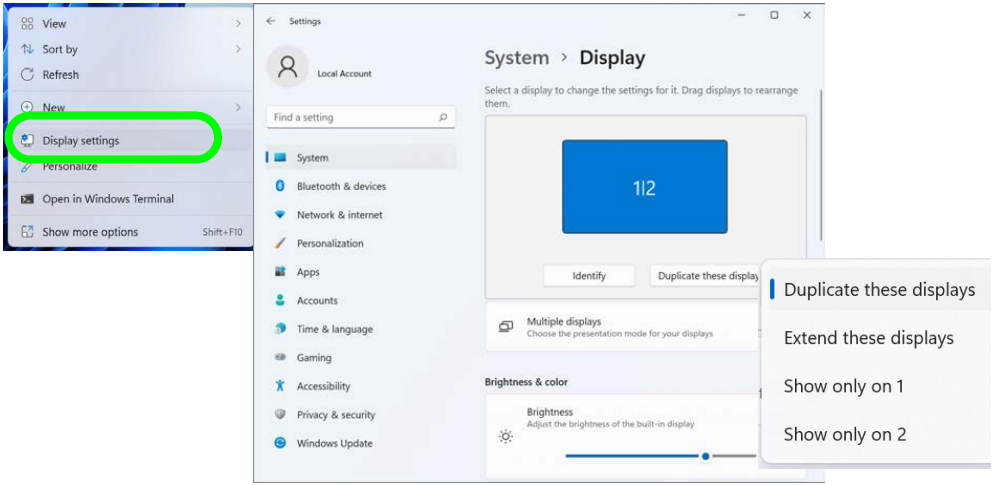


Figure B - 2
Settings > System > Display (Multiple Displays)

B

Volume Adjustment

The sound volume level can be adjusted from the **Action Center** in Windows by clicking the battery icon (or use the **Windows Logo Key + A** key combination) in the notification tray.

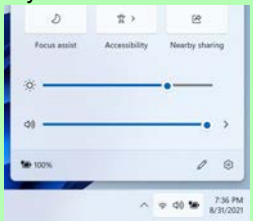


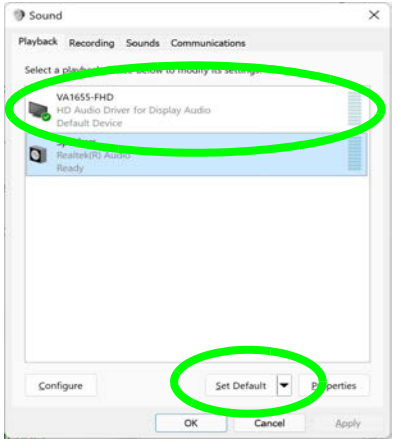
Figure B - 3

Sound - HDMI Device (Set Default)

HDMI Audio Configuration

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

1. 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.



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

HDMI Notes

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

HDMI Video Configuration

1. Connect an HDMI cable from the HDMI-Out port to your external display.
2. Configure your external display as per the instructions in ***"Attaching Other Displays" on page B - 21***.
3. Set up your external display (TV or LCD) for HDMI input (see your display device manual).
4. You can now play video/audio sources through your external display.

Other Applications

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

B

Wireless Display Configuration

1. Note that no driver or application is required for wireless display in ***Windows 11***.
2. Press the ⊞ **+ K** key combination, or, go to the **Display** settings menu and select **Connect to a wireless display** and then click **Connect**.

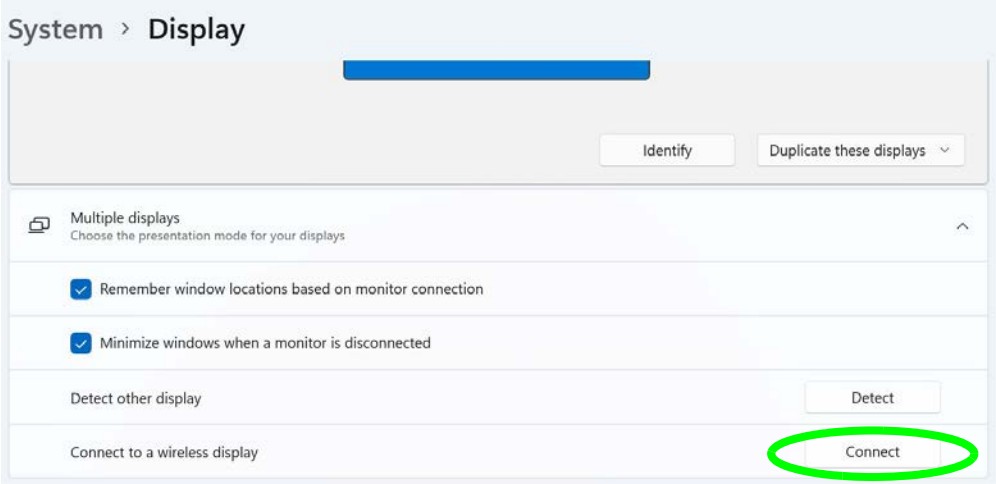


Figure B - 4
Settings . System > Display (Connect to a Wireless Display)

3. The system will then search for compatible display devices (**this may take up to 60 seconds** so allow time for this to complete).
4. Double-click any detected display device in the list.
5. You may then need to input a pin number for the device to which you are connecting and click **Next**.

B

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

Intel® Graphics Command Center

Advanced video configuration options are provided by the **Intel Graphics Command Center**.

1. Access the **Intel Graphics Command Center** from the **Start** menu in **Windows** (click **All apps** and scroll down to **Intel Graphics Command Center**).
2. You can **right-click** the **Intel Graphics Command Center** in the Start menu and pin the control panel to Start and/or taskbar.

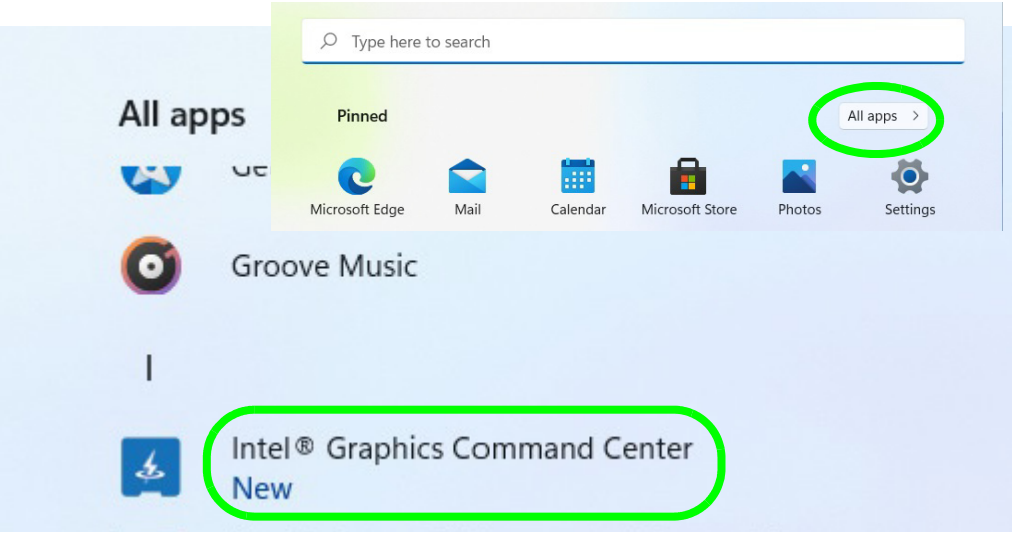
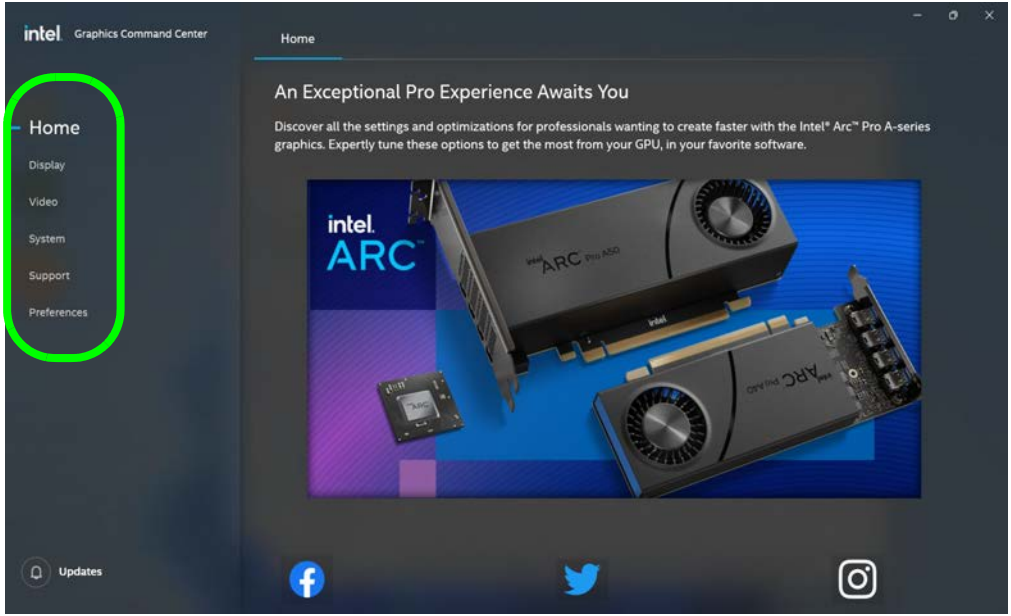


Figure B - 5
Intel® Graphics Command Center (Windows Start Menu)

B

You may make changes to any of the graphics properties by clicking the appropriate icon on the left and you and then adjust the settings from the sub-menus.



Home

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

Figure B - 6
Intel® Graphics Command Center (Home Screen)

B

Multiple Display

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

Display

Click either **General, Color, Information and Global Settings** to make display adjustments, including configuration for any attached external displays.

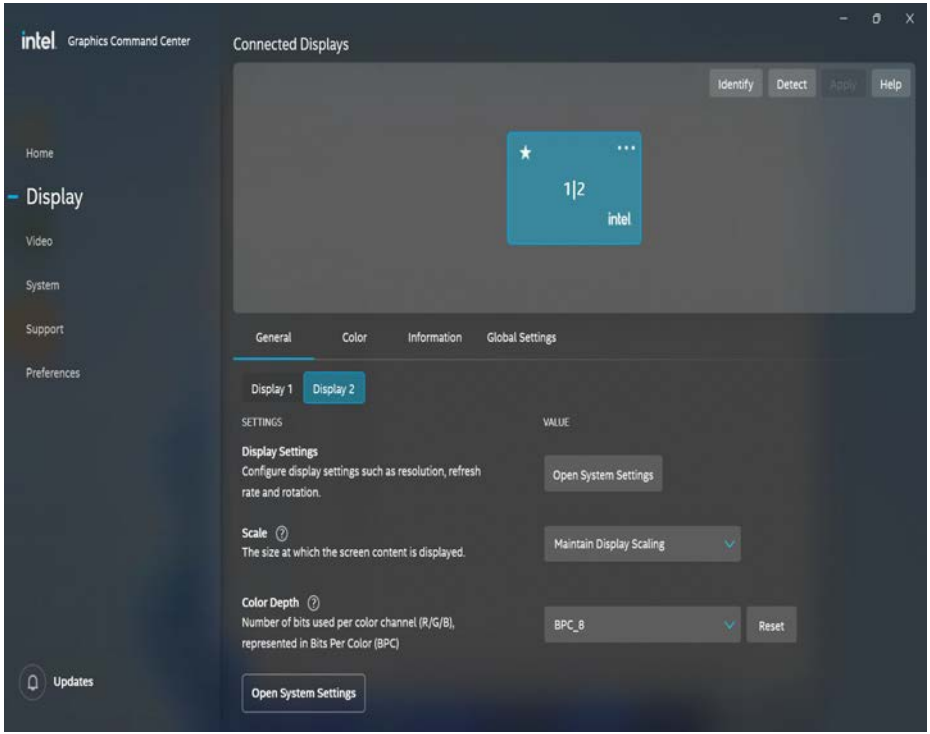


Figure B - 7
Intel® Graphics Command Center (Display Screen - General)

Use the **Display** menu to access System Settings for Display, Scale, and Color Depth and Format. Click **Open System Settings** (see page ***B - 3***) to go to the Display Control Panel to configure displays.

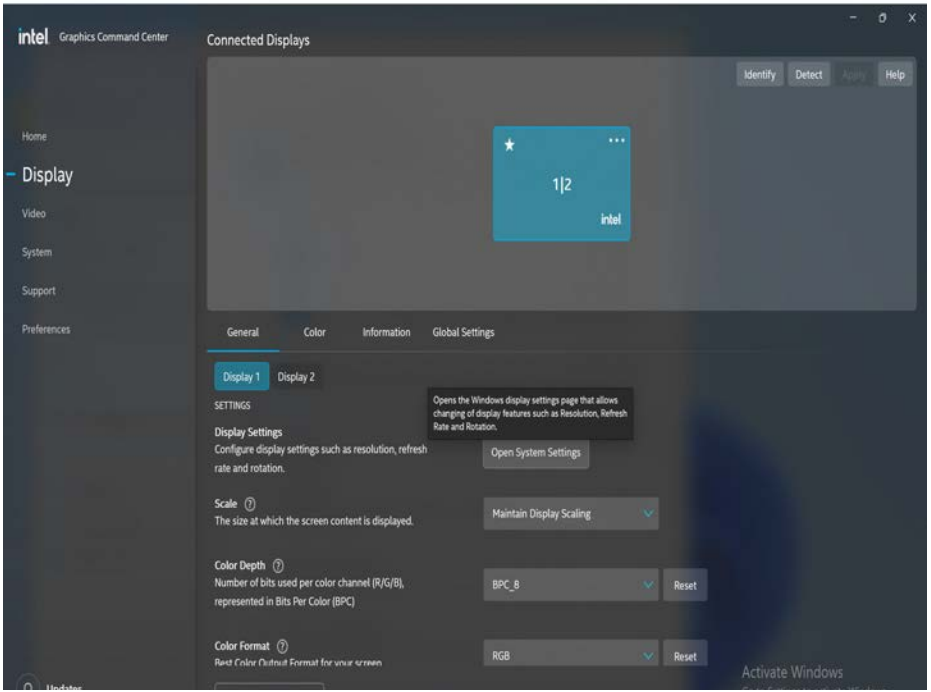


Figure B - 8
Intel® Graphics Command Center (Display)

B

Multiple Display

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

Audio Settings

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

When external displays are attached you can use the **Connected Displays** control panel to configure **multiple displays** (see *"Attaching Other Displays" on page B - 21*). Click on the **dotted lines** at the top right of the display graphic to access the settings options and click **Apply** to save any changes made.

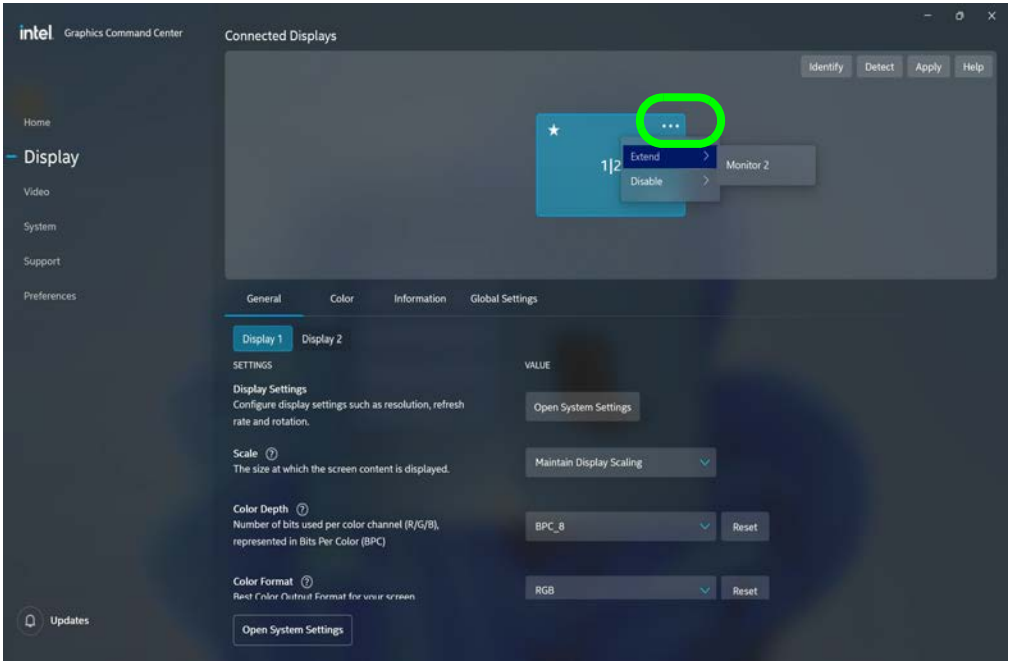


Figure B - 9
Intel® Graphics Command Center Connected Displays

B

Display (Color)

Use the color sliders from the menu to make changes to the display. If you wish to revert to the default settings simply click on **Restore to Original Colors**.

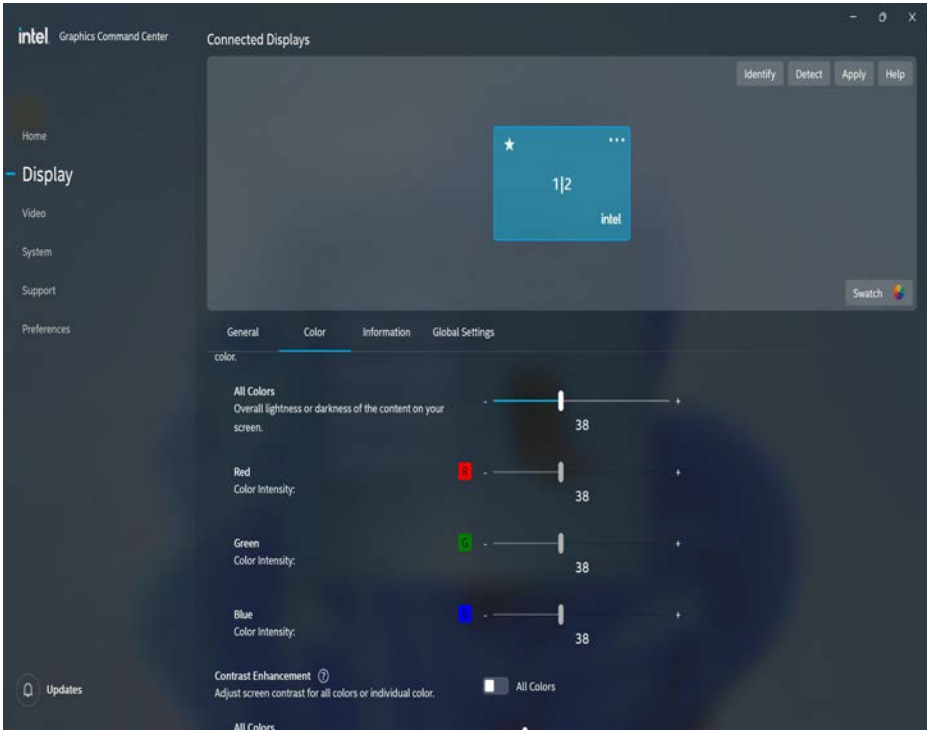


Figure B - 10
Intel® Graphics Command Center (Display - Color Screen)

B

Information

Information provides details on any attached displays.

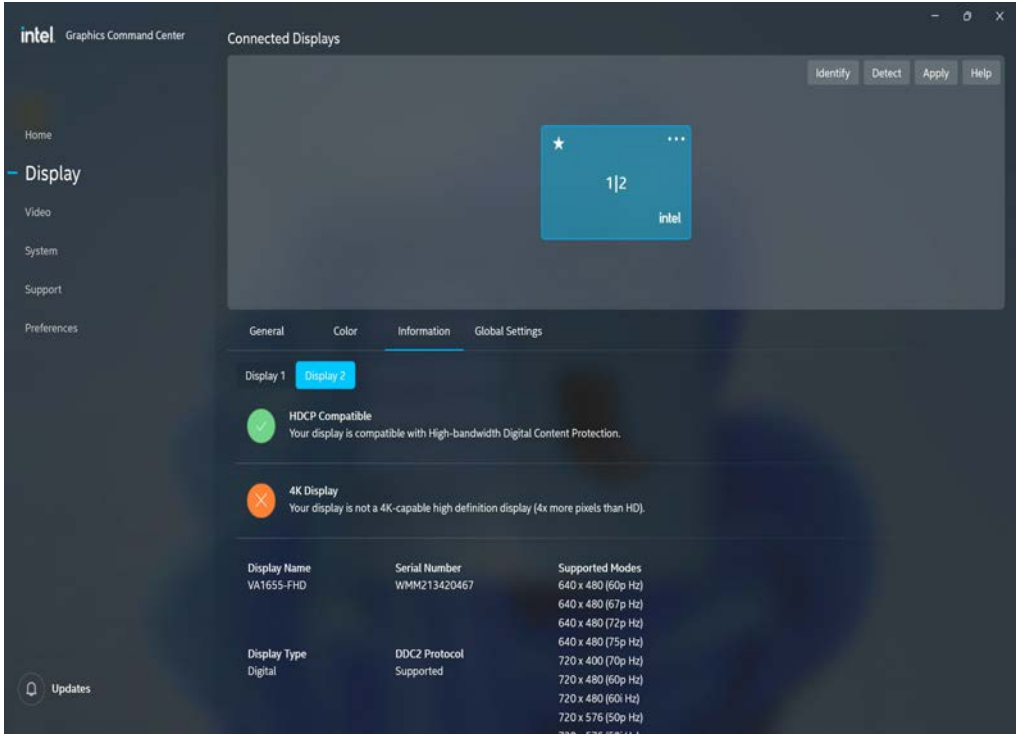


Figure B - 11
Intel® Graphics Command Center (Display - Information)

B

Global Settings

Configure the Adaptive Sync settings for fast frame rates which sync with the display's refresh rate for a fluid gaming experience.

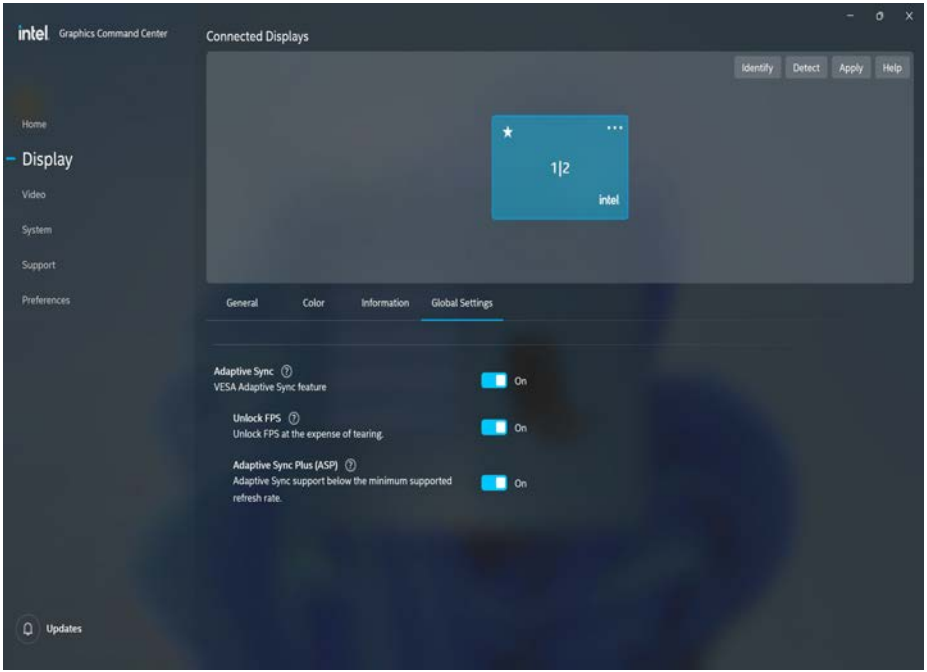


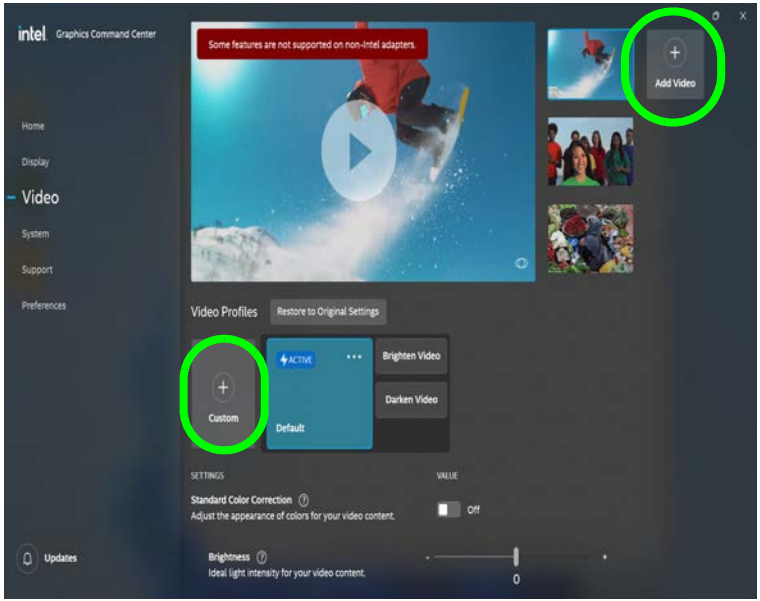
Figure B - 12
Intel® Graphics Command Center (Display - Global Settings)

B

Video

The **Video** menu allows you to brighten or darken movies, adjust colors and a range of other video options. The **Preview** image will display a sample image using the current settings, and you can click **Add Video** to select your own sample video. You will need to click **Custom** to create a **custom profile** to make adjustments to most of the settings and you can rename, duplicate or delete custom profiles.

Figure B - 13
Intel® Graphics Command Center (Global Settings)



System

Hot Keys in **System** allows you to create and enable/disable hot keys for opening the application and display rotation etc. Click **Apply** to save changes. The **Driver** and **Hardware** tabs provide information on your current video driver version and hardware configuration.

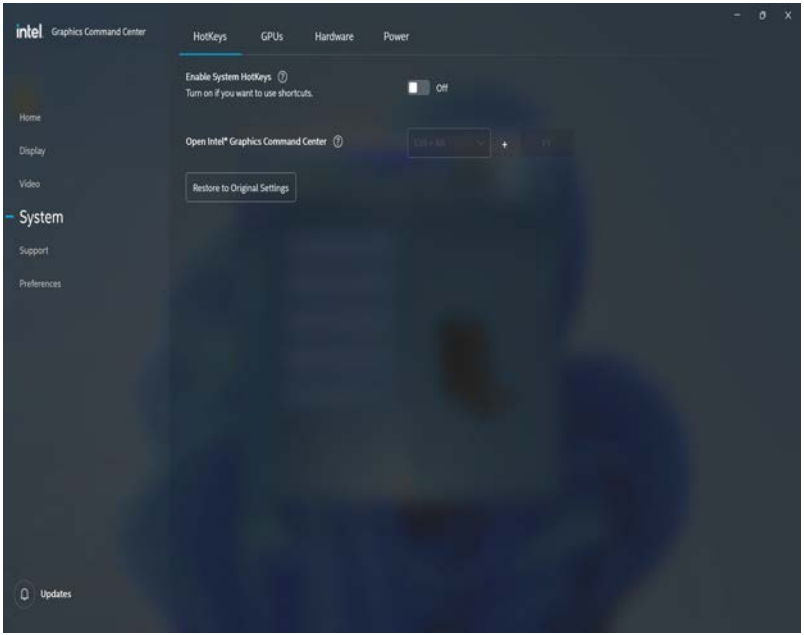


Figure B - 14
Intel® Graphics Command Center (System - Hotkeys)

B

Support

Online Resources in **Support** provides links to online support for Intel graphics issues and to the latest drivers. The **System Diagnostic** tab allows you to **Generate Report** on the graphics system (as may be required by online help services).

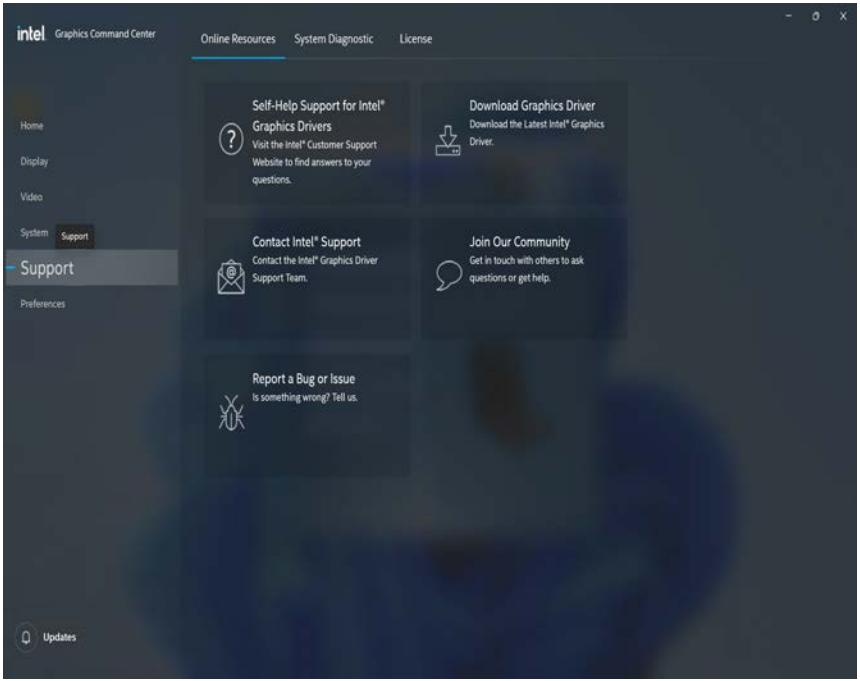


Figure B - 15
Intel® Graphics Command Center (System - Support)

B

Preferences

You can configure the app to your preferences from this menu.

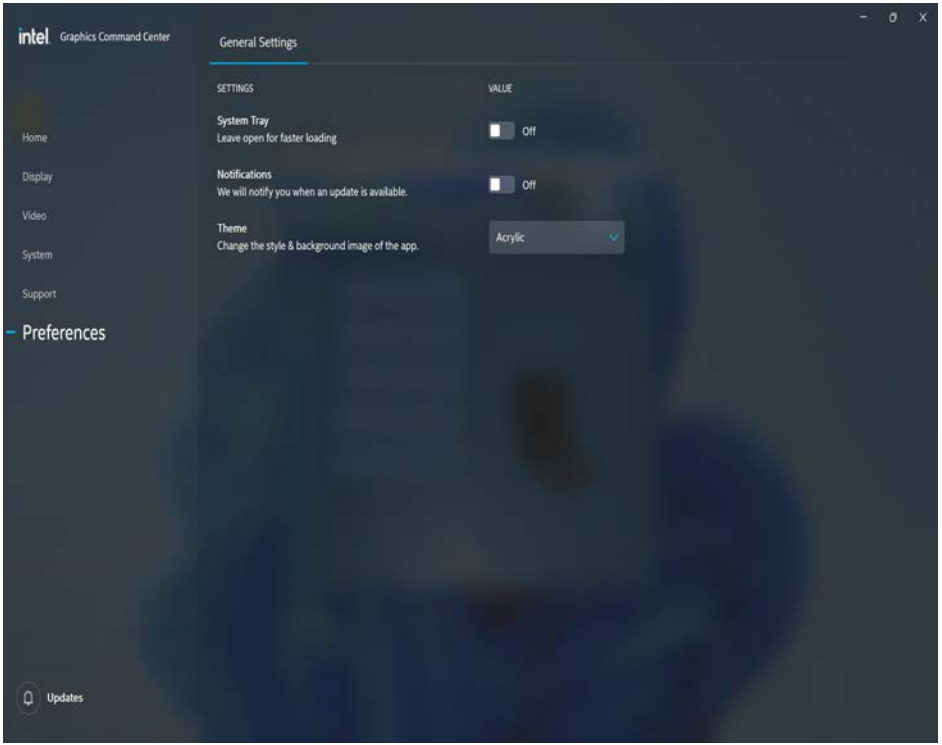


Figure B - 16
Intel® Graphics Command Center (Preferences)

B

4K2K Videos on 4K2K External Displays

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

Display Devices & Options

You can use external displays connected to the HDMI-Out port, USB 3.2 Gen 2 port (Type C) with Power Delivery In and/or Thunderbolt Combo Port. In addition to the built-in display, up to **2 external displays** can be connected, **for a total of 3 displays**.

Table B - 1
Display Modes

Intel Display Mode	Description
Single Display	One of the connected displays is used as the display device (**PC screen only** or **Second screen only**).
Mirror	Both connected displays output the same view and may be configured independently.
Extend	Both connected displays are treated as separate devices, and act as a virtual desktop.

Attaching Displays

When you first attach an external display you may find that the desktop does not occupy the full screen area. Use either the display's auto adjust/configure controls, or the Intel Graphics Command Center to configure the full screen display.

Attaching Other Displays

To Mirror Displays:

1. Attach your external display to the appropriate port, and turn it on.
2. Go to the **Intel Graphics Command Center** and click the **Display** menu button.
3. Click **Detect** if you need to scan for any attached displays.
4. The system should automatically be in **Mirror** mode,
5. If not, click on the dotted lines at the top right of the display graphic to access the settings options and select **Mirror** and the Monitor #.
6. Click **Apply** to confirm any settings change if necessary.

Connected Displays

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

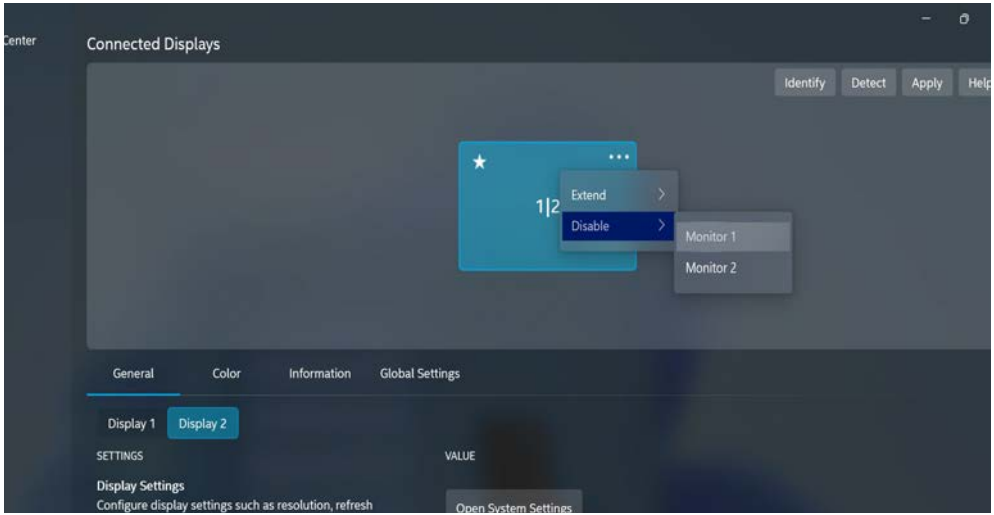


Figure B - 17
Display > Mirror

B

To Enable Extend Mode:

1. Attach your external display to the appropriate port, and turn it on.
2. Go to the **Intel Graphics Command Center** and click the **Display** menu button.
3. Click **Detect** if you need to scan for any attached displays.
4. Click on the dotted lines at the top right of the display graphic to access the settings options and select **Extend** and the Monitor #.
5. Click **Apply** to confirm any settings change if necessary.

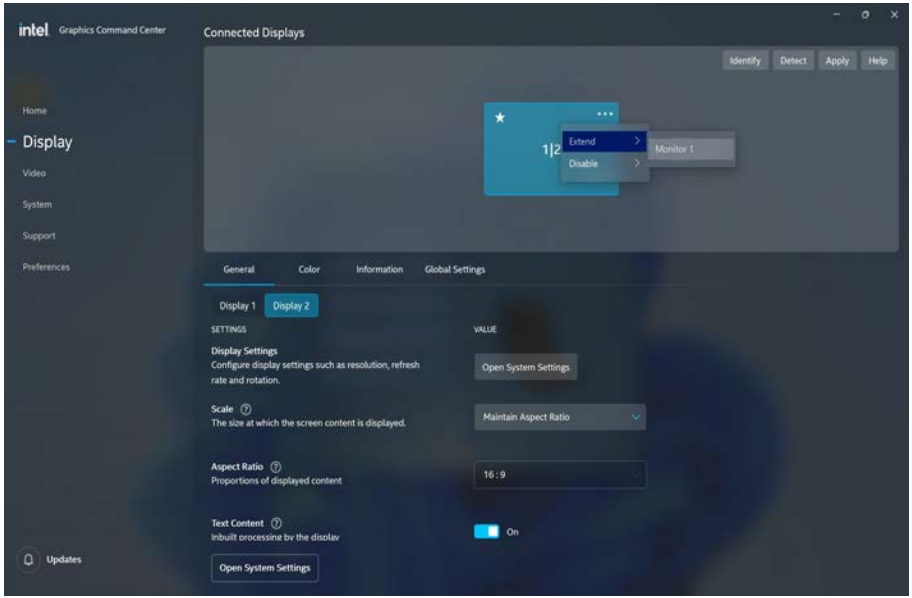
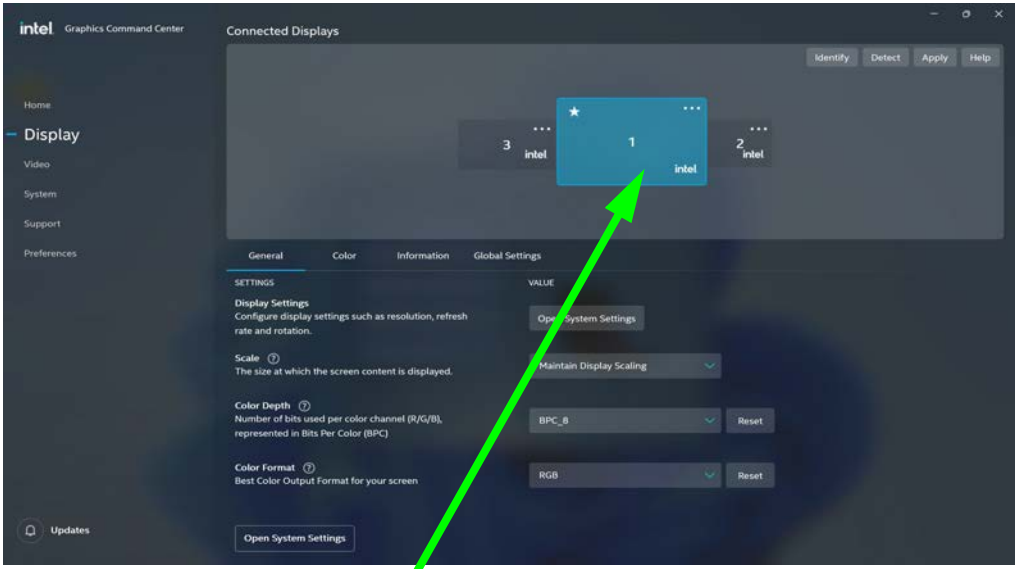


Figure B - 18
Display > Extend

B

6. You can have different resolutions, monitor refresh rates, scales, rotations and aspect ratios for each display device **provided your display can support them**.
7. You can drag the display icons to match the physical layout of your displays.
8. Icons and programs may also be dragged between the displays.



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

Figure B - 19
Display > Extend (Drag Display)

B

Appendix C: Specifications

Latest Specification Information

The specifications listed in this Appendix are correct at the time of going to press. Certain items (particularly processor types/ speeds and CD/DVD device types) may be changed, 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 either **Display> Advanced display (settings) > Display adapter properties... .**

Display

Model A:
14” / 35.67cm FHD+ (1920 * 1200) / 2,8K (2880 * 1800), 16:10, 5.0mm Thick Backlit Panel

Model B:
16” / 40.64cm QHD+ (2560 * 1600) / FHD+ (1920 * 1200), 16:10, 5.0mm Thick Backlit Panel

Memory

Dual Channel **DDR5**

Memory Expandable up to **64GB** Compatible with 8GB, 16GB or 32 GB Modules

Two 262 Pin SO-DIMM Socket Supporting **DDR5 5600MHz** (processor dependent) Memory Modules (*real operational frequency depends on the FSB of the processor*)

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.
Don’t mix SO-DIMM memory module sizes and brands in order to prevent system problems.

Storage

Two M.2 SSD 2280, PCIe Gen 4x4 Interface (RAID 0/1)

Audio

High Definition Audio Interface
2 * Built-In Speakers
Built-In Array Microphone

Pointing Device & Keyboard

Full Size Isolated Keyboard with Numeric Pad **OR**
Full Size Isolated Illuminated (White Color) Keyboard (**Factory Option**)

Built-in Click Pad with Microsoft PTP Multi-Gesture and Scrolling Functionality

Interface

*One Thunderbolt 4 Combo Port with Power Delivery DC-In (Type C)
*One USB 3.2 Gen 2 Port (Type C) with Power Delivery DC-In
One USB 3.2 Gen 2 Port with AC/DC Powered Function (Type A)
One USB 3.2 Gen 1 Port (Type A)
==========

Note: The maximum amount of current supplied by USB ports is 900 mA for USB 3.2 & Type C. The maximum amount of current supplied by the Thunderbolt™ 4 port is 5V/3A in AC or DC mode.

***Note**: The Thunderbolt 4 Combo and USB 3.2 Type C Ports support Power Delivery with DC-In.

These ports allow you to use a power source, with a USB Type C cable and connector, plugged into the port to charge the computer.

Make sure any power source complies with the USB-C PD (Power Delivery) standard specification rated 20Vdc, 5A, or 20Vdc 3.25A.

See over

One HDMI-Out (High-Definition Multimedia Interface) Port (with HDCP)
One 2-in-1 Audio Jack (Headphone / Microphone Combo / CTIA)
One RJ-45 LAN Jack
One DC-In Jack

Card Reader

MicroSD Push-Push Card Reader

Slot

Three M.2 Card Slots:

Slot 1 for M.2 2230 WLAN Combo Module with PCIe / USB / CNVI Interfaces (E Key)

Slots 2 & 3 for SSD M.2 2280 Card with PCIe Gen 4*4 Interface (M Key)

Communication

Built-In 10/100/1000/2500Mb Base-TX **Ethernet LAN**

1.0M HD Webcam Module

2.0M FHD WebCam Module with **TNR**

2.0M FHD Windows Hello Dual Sensor Webcam Module with **SecureBIO Module** with **TNR (Factory Option)**

Intel® Dual Band Wi-Fi 6 AX201 2*2 WLAN + Bluetooth M.2 2230 Module (**Factory Option**)

Intel® Dual Band Wi-Fi 6E AX211 2*2 WLAN + Bluetooth M.2 2230 Module (**Factory Option**)

Intel® Tri-Band Wi-Fi 7 BE200 2*2 WLAN + Bluetooth M.2 2230 Module (**Factory Option**)

Power Management

Supports Wake on LAN
Supports Wake on USB (AC Mode Only)
Supports Wake on RTC Alarm (AC Mode Only)
Windows Modern Standby

Security

Security (Kensington® Type) Lock Slot
BIOS Password
Trusted Platform Module 2.0
Intel® PTT for Systems Without TPM

Power & Battery

Type C AC/DC Adapter - AC input 100 - 240V, 50 - 60Hz, DC Output 19V, 4.74A (**90** Watts)

Embedded Polymer Smart Lithium Ion Battery Pack 55Wh

Embedded Polymer Smart Lithium Ion Battery Pack 73Wh - (**Factory Option**)

Features (For Some Model Designs)

Shipping Mode
FlexiCharger
MIL-STD 810H

Operating System

Windows® 11 23H2 (64-bit)

Indicators

Power/Suspend, Battery & Camera

BIOS

One 256Mb SPI Flash ROM
Insyde BIOS

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

Dimensions & Weight

Model A:

317mm (w) * 235mm (d) * 18mm (h)

1.4kg *Barbone System with 55Wh Battery

OR

1.6kg *Barbone System with 73Wh Battery

Model B:

358mm (w) * 258.6mm (d) * 18.mm (h)

1.69kg *Barbone System with 55Wh Battery

OR

1.8kg *Barbone System 73Wh Battery

**A barbone system is without the adapter, power cord and factory option modules.*