

USER'S MANUAL

Mini PC



Notice

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Preface

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.

CE Mark Warning This is a class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures. **RF Exposure Information** This device meets the EU requirements (1999/519/EC) on the limitation of exposure of the general public to electromagnetic fields by way of health protection. The device complies with RF specifications when the device is used at 20 cm from your body.

Preface

FCC Statement (Federal Communications Commission)

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

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the service representative or an experienced radio/TV technician for help.

Operation is subject to the following two conditions:

1. This device may not cause interference.
And
2. This device must accept any interference, including interference that may cause undesired operation of the device.

FCC RF Radiation Exposure Statement:

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



Warning

Use only shielded cables to connect I/O devices to this equipment. You are cautioned that changes or modifications not expressly approved by the manufacturer for compliance with the above standards could void your authority to operate the equipment.

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

Wireless Function Caution with Radio Waves

This device should not be used near microwave ovens and/or commercial, industrial and medical devices where interference may occur from magnetic fields, radio emissions or static electricity; nor in the area of radio waves of about 2.4GHz.

This computer uses the same radio frequency as used by:

- Wireless stations for mobile object identification as used in factory production lines, and amateur radio stations (license required).
- Specialized low power wireless stations (license not required).
- Industrial, scientific and medical equipment.

Before using this product, ensure that no other wireless stations are being used in the area. If the product does cause radio wave interference with any of the wireless stations listed above, either change the location where this product is used, or immediately stop radio wave emissions from the device.

If there are any other problems concerning this computer's wireless communications please contact your distributor/supplier.

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. Use only the power cord and power supply indicated in this manual.
3. This product is intended to be supplied by a Listed Power Unit as below:

- AC/DC Adapter - AC Input 100 - 240V, 50 - 60Hz, DC Output 19V, 3.42A (**65W**) minimum.

OR

- Type C AC/DC Adapter (**Factory Option**) - AC Input 100 - 240V, 50 - 60Hz, DC Output 20V, 3.25A (**65W**) minimum.



Volume Warning

To prevent possible hearing damage, do not listen at high volume levels for long periods.



Instructions for Care and Operation

The computer is 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 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.*
 - *Do not leave it in a place where foreign matter or moisture may affect the system.*
 - *Don't store the computer in a humid environment.*
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.
 - *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.*

Power Safety

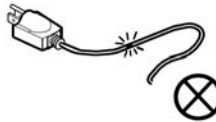
The computer has specific power requirements:

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

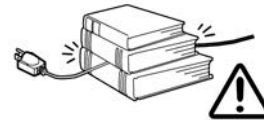
Do not plug in the power cord if you are wet.



Do not use the power cord if it is broken.



Do not place heavy objects on the power cord.



Preface

Cleaning

Do not apply cleaner directly to the computer; use a soft clean cloth.

Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

Servicing

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

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



Warranty Warning

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

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

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.

⚠ 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 be swallowed or inserted inside any part of the body.



- The product contains non-replaceable batteries (Nominal voltage: 3Vdc / Battery Type: CR2032).
- Remove and 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.
- Non-rechargeable batteries are not to be recharged.
- Do not force discharge, recharge, disassemble, heat above (manufacturer's specified temperature rating) or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.

Contents

Notice	I
ErP Off Mode Power Consumption Statement:	II
FCC Statement	IV
FCC RF Radiation Exposure Statement:	V
Wireless Function Caution with Radio Waves	VI
Instructions for Care and Operation	VIII
Power Safety	IX
Cleaning	X
Servicing	X

Quick Start Guide

Overview	1-1
Advanced Users	1-2
Beginners and Non-Advanced Users	1-2
Warning Boxes	1-2
Manual Graphics	1-2
Not Included	1-3
System Startup	1-4
AC/DC Adapter	1-5
System Software	1-5
Front View	1-6
LED Indicators	1-7

Preface

Multi-In-1 Card Reader	1-7
Combination Headphone/Microphone Audio Jack	1-8
Realtek Audio Console	1-8
Rear View	1-10
Left & Right Views	1-12
Bottom View	1-13
Control Center	1-14
Windows 11 Start Menu	1-15
Right-Clicking the Windows Logo In Start Menu	1-16
Windows Control Panel	1-18
Windows Settings	1-19
Windows Taskbar	1-20
Windows Action Center	1-21
Video Features	1-22
Power Options	1-27
Shutting the Computer Down	1-29
Sleep (Modern Standby)	1-29
Hibernate	1-30
Resuming Operation	1-30
Drivers & Utilities	
What to Install	2-1
Module Driver Installation	2-1

Driver Installation	2-2
Updating/Reinstalling Individual Drivers	2-5
User Account Control	2-6
Windows Security Message	2-6
New Hardware Found	2-6
Driver Installation Procedure	2-7
Chipset	2-7
Serial IO	2-7
Video (VGA)	2-7
LAN	2-8
CardReader	2-8
Intel® HID Filter Driver	2-8
Control Center	2-8
Intel® MEI Driver	2-8
Audio	2-9
Optional Drivers	2-10
BIOS Utilities	
Overview	3-1
The Insyde BIOS Utility	3-2
Updating the BIOS / CPU	3-3
UEFI Boot	3-4
Insyde BIOS Start Screen	3-5

Preface

Insyde BIOS Start Screen Options:	3-6
Boot Manager	3-7
Boot From File / File Explorer	3-8
Administer Secure Boot	3-9
Setup Utility - Main Menu	3-11
Setup Utility - Advanced Menu	3-13
Setup Utility - Security Menu	3-16
Setup Utility - Boot Menu	3-19
Setup Utility - Exit Menu	3-21

Modules & Options

Overview	4-1
Wireless LAN	4-2
Intel® WLAN Driver Installation	4-3
WLAN Configuration in Windows	4-4
Bluetooth	4-7
Intel Bluetooth Driver Installation	4-8
Bluetooth Configuration in Windows	4-9
To Make Your Computer Discoverable to Bluetooth Devices	4-12
Intel® Speed Shift Technology Driver	4-13
Speed Shift Technology Driver Installation	4-13
Intel® GNA Driver	4-14
Intel GNA Driver Installation	4-14

Intel® Rapid Storage Technology	4-15
IRST Driver Installation	4-15
Intel® Optane™ Memory & Storage Management	4-16
Trusted Platform Module	4-17
Enabling & Activating TPM	4-18
TPM Management in Windows	4-19

Troubleshooting

Overview	5-1
Basic Hints and Tips	5-2
Backup and General Maintenance	5-3
Viruses	5-4
Upgrading and Adding New Hardware/Software	5-5
Problems and Possible Solutions	5-7

Disassembly

Overview	6-1
Maintenance Precautions	6-2
Bottom Cover Removal	6-4
System Memory Removal	6-7
Hard Disk Drive Removal	6-9
Hard Disk Drive Insertion	6-10
Removing the M.2 SSD Module(s)	6-11

Preface

Bottom Cover Insertion	6-12
------------------------------	------

Interface (Ports & Jacks)

Overview	A-1
Notebook Ports and Jacks	A-2

Video Driver Controls

Intel Video Driver Installation	B-1
Configure Attached Displays Using Project	B-2
Configuring an External Display In Windows	B-3
HDMI Audio Configuration	B-4
Wireless Display Configuration	B-6
Intel® Graphics Command Center	B-8
Display Devices & Options	B-20
Attaching Other Displays	B-21

VESA Mount

Overview	A-1
VESA Mount	C-2

Specifications

Memory	D-2
Storage	D-2

Audio	D-2
Interface	D-2
Slot	D-2
Communication	D-2
Power & Battery	D-3
Security	D-3
Power Management	D-3
Features (For Some Model Designs)	D-3
Operating System	D-3
BIOS	D-3
Indicators	D-3
Environmental Spec	D-3
Dimensions & Weight	D-3

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** The installation of the **drivers** and utilities essential to the operation or improvement of some of the computer's subsystems.
- **Chapter 3** An outline of the computer's built-in software or **BIOS** (Basic Input Output System).
- **Chapter 4** A quick guide to the computer's **Wireless LAN**, **Combo Bluetooth & WLAN** and **Intel** modules (some of which may be **optional** depending on your purchase configuration).
- **Chapter 5** 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** A guide to the optional VESA mount bracket.
- **Appendix D** The computer's **specification**.

Advanced Users

If you are an advanced user you may skip over most of this Quick Start Guide. However you may find it useful to refer to ***“What to Install” on page 2 - 1*** and ***“BIOS Utilities” on page 3 - 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*.

Manual Graphics

Note that the pictures, illustrations and screenshots throughout this manual are correct at time of going to press. However, these are subject to change and revision, therefore your computer’s actual screens may appear slightly different from those pictured.

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 2 - 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 2*** 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 Mini PC (e.g. keyboard and mouse) to their ports.
3. Attach the AC/DC adapter cord to the DC-In jack **1** at the rear of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
4. Make sure your external display is attached and powered on.
5. Press the power button on the top 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.

Type C Adapter

If you are using the Type C adapter then plug the cable into the Thunderbolt 4 combo port with Power Delivery DC-In **2**.

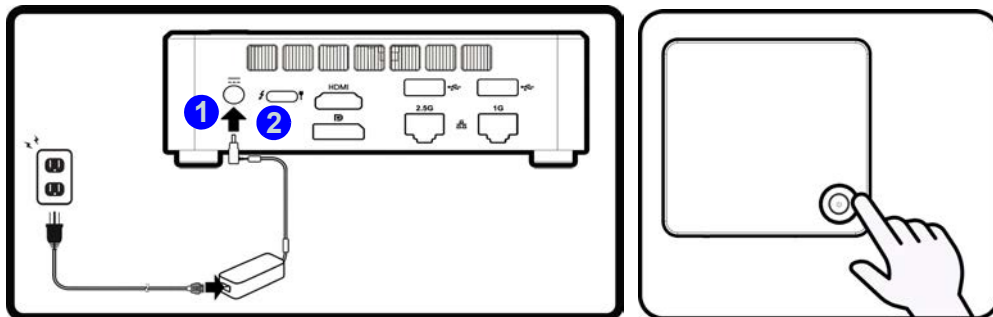


Figure 1 - 1 - System with Adapter Plugged-In and Power On Button

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.

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

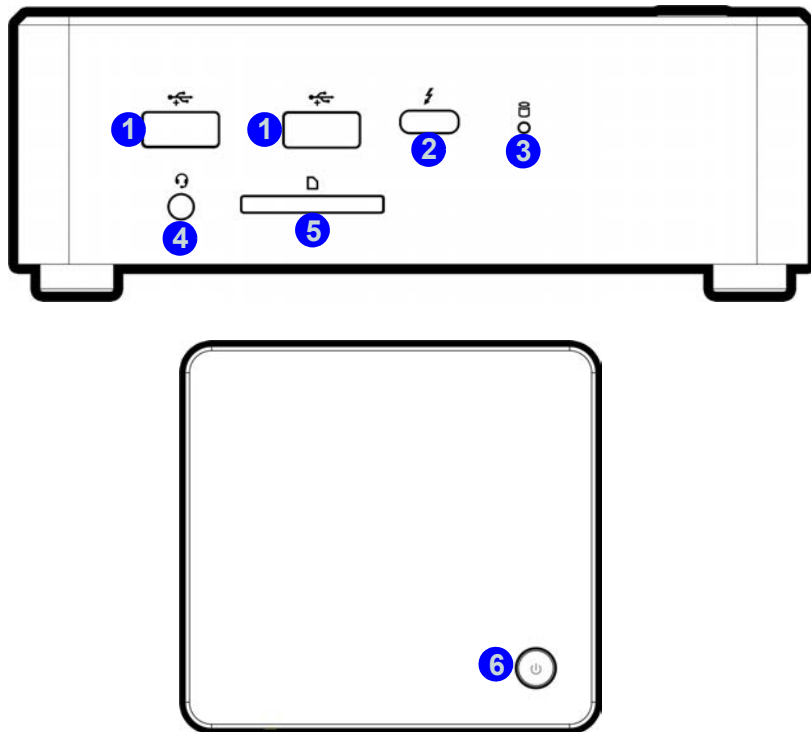
Note that the information included on the following pages is for **Windows 11 only**.

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

Figure 1 - 2
Front View

1. 2 * USB 3.2 Gen 2 (Type A) Ports
2. Thunderbolt™ 4 Port (Type C)
3. HDD/SSD LED Indicator
4. 2-In-1 Audio Jack (Headphone/ Microphone)
5. 6-In-1 Card Reader
6. Power Button

Front View



LED Indicators

The LED (including the power button on the top of the computer) indicators display helpful information about the current status of the computer.

Icon	Color	Description
	Green	Hard Disk / SSD Activity
	Off	Power Off or Hibernate mode (Press the power button to turn it on)
	Blue	The system is powered On
	Blinking Blue	The system is in Sleep mode

Table 1 - 1 - LED Indicators

Multi-In-1 Card Reader

The card reader allows you to use some of the latest digital storage cards. Push the card into the slot and it will appear as a removable device, and can be accessed in the same way as your SSD. Make sure you install the card reader driver (see *“CardReader” on page 2 - 8*).

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

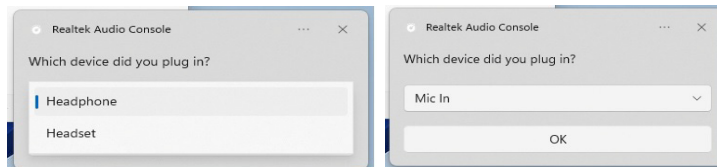
***Note:** The PC adapters are usually supplied with these cards.

Quick Start Guide

Combination Headphone/Microphone Audio Jack

Note that the combination audio jack 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 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.

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 2 - 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**.

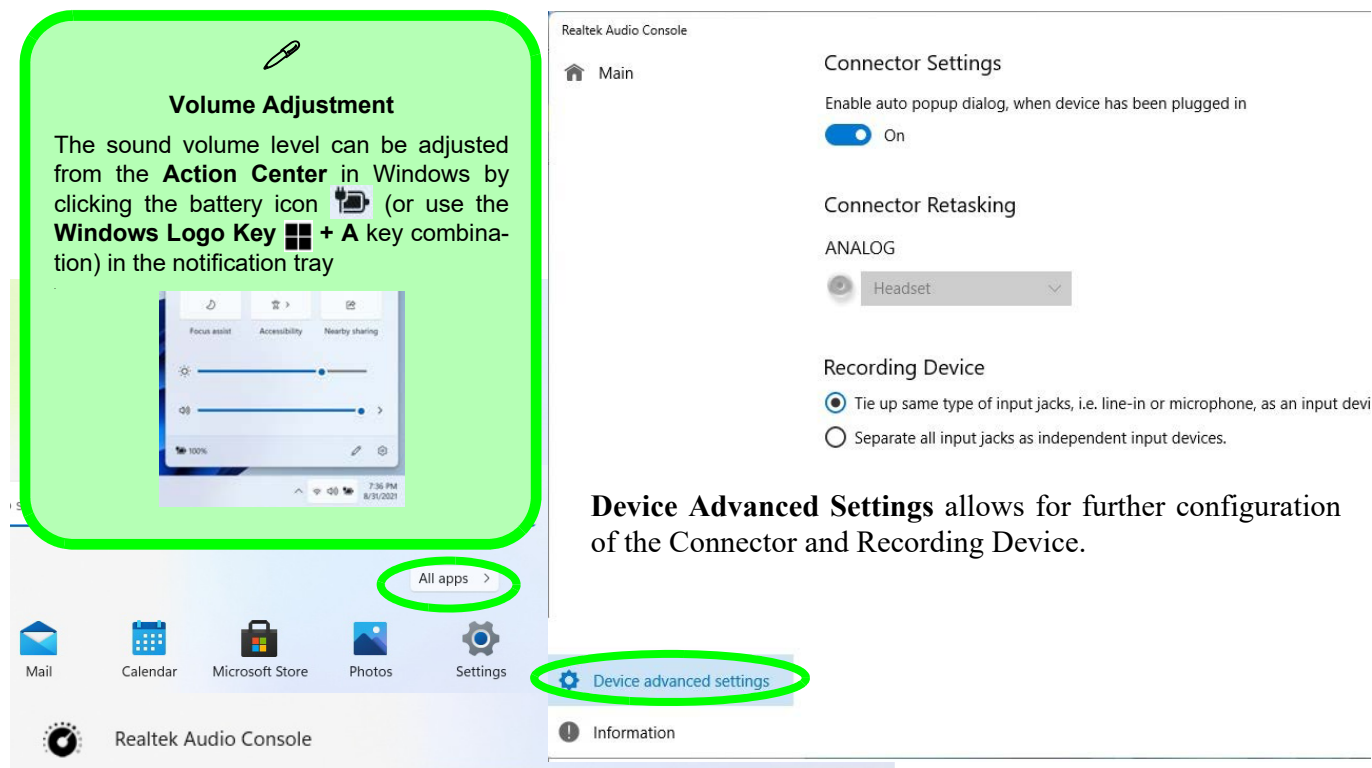


Figure 1 - 3 - All Apps > Realtek Audio Console

Figure 1 - 4
Rear View

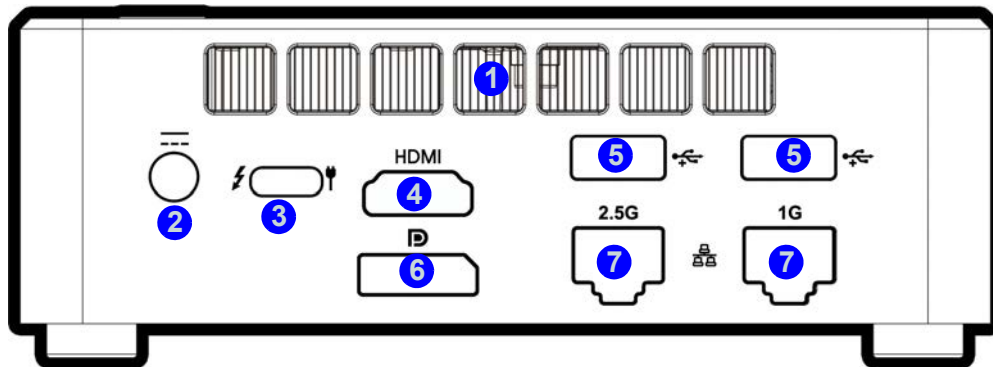
1. Vent/Fan Intake/Outlet
2. DC-In Jack
3. Thunderbolt™ 4 Combo Port with Power Delivery DC-In (Type C)
4. HDMI-Out Port
5. 2 * USB 3.2 Gen 2 Type A Ports
6. DisplayPort 1.4
7. 2 * RJ-45 LAN Jacks (1 * 2.5G & 1 * 1G RJ-45 LAN Jack)



Overheating

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

Rear View



USB & Thunderbolt Ports

This computer model includes:

- 2 * Thunderbolt™ 4 Ports (Type C) including 1 port with Power Delivery DC-In
- 4 * USB 3.2 Gen 2 (Type A) Ports

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/1.5A.



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.

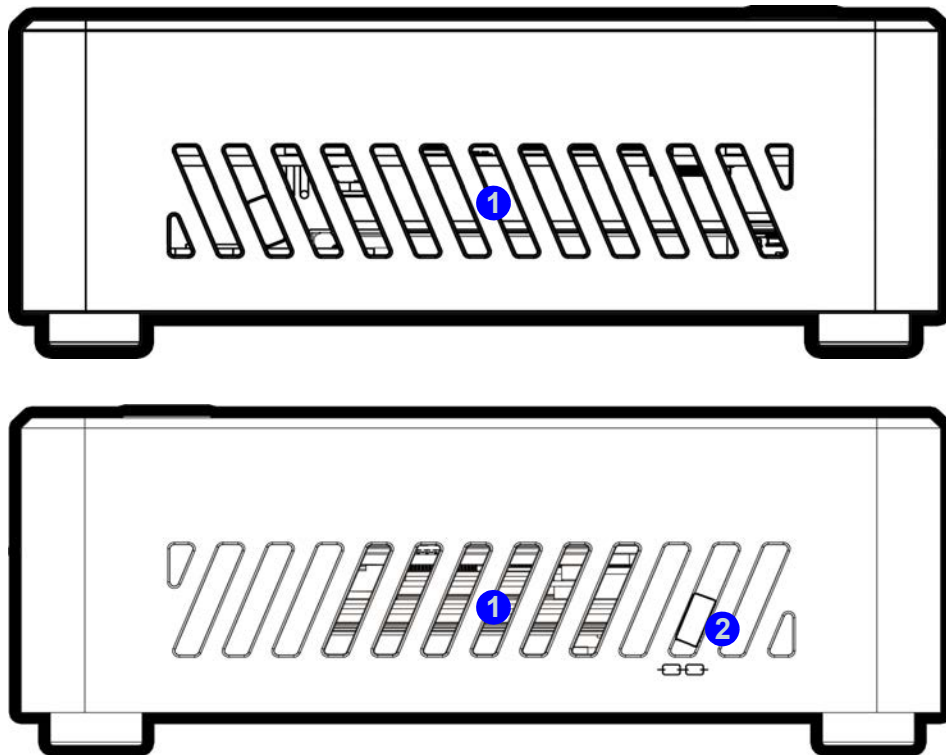
One Thunderbolt™ 4 port supports Power Delivery with DC-In. This port allows you to use a power source, with a USB Type C cable and connector, plugged into the port to charge the computer. Make sure any power source complies with the USB-C PD (Power Delivery) standard specification rated at 20V/65W.

DisplayPort Cables

When using cables connected to the DisplayPort, try to make sure that the cables are not bent excessively, as bending the cables may cause signal problems.

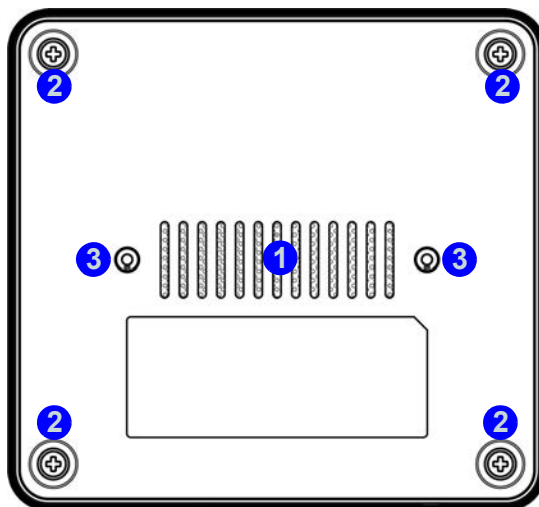
*Figure 1 - 5***Left & Right Views**

1. Vent/Fan Intake/Outlet
2. Security Lock Slot

Left & Right Views**Overheating**

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

Bottom View



Overheating

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

Figure 1 - 6

Bottom View

1. Vent/Fan Intake/Outlet
2. Case Removal Screws
3. VESA Mount Screw Location (for an optional VESA Mount Bracket)



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.

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, and **Preferences**. There is a Help menu available with the Control Center.

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.

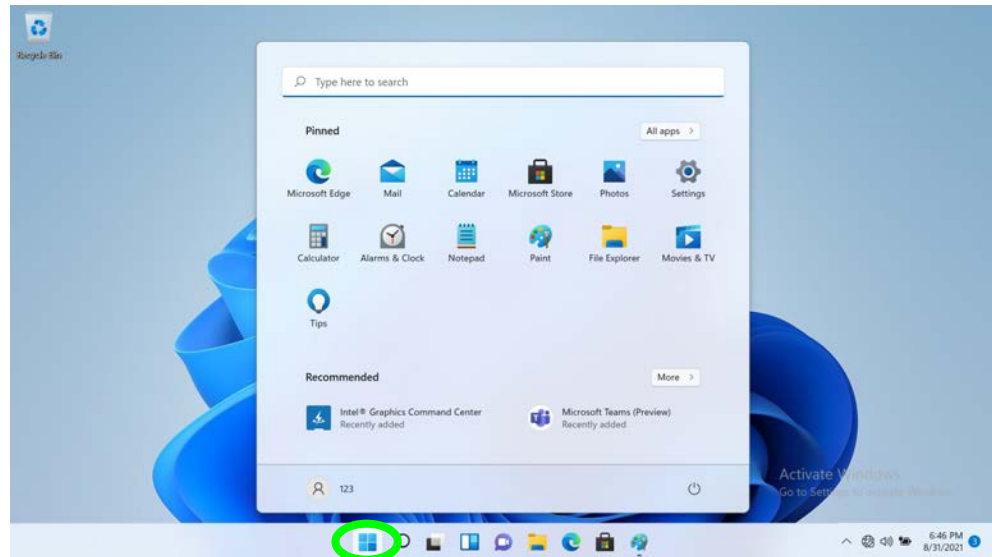


Figure 1 - 7 - Windows Start Menu

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.

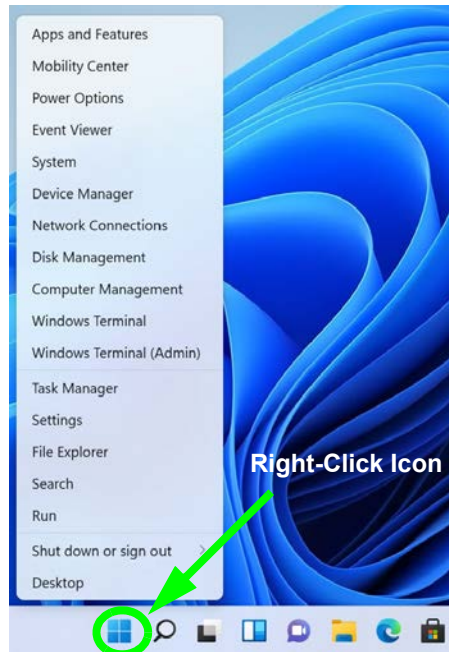


Figure 1 - 8 - Right-Click Windows Logo in Start Menu

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).

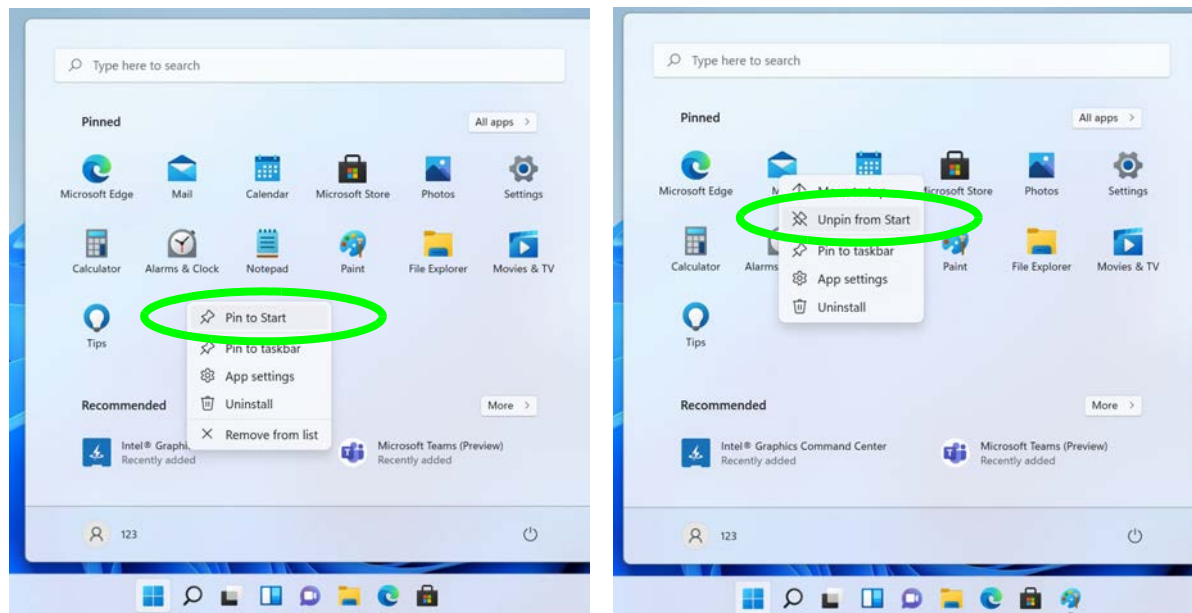


Figure 1 - 9 - Pin to Start/Unpin from Start

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**.

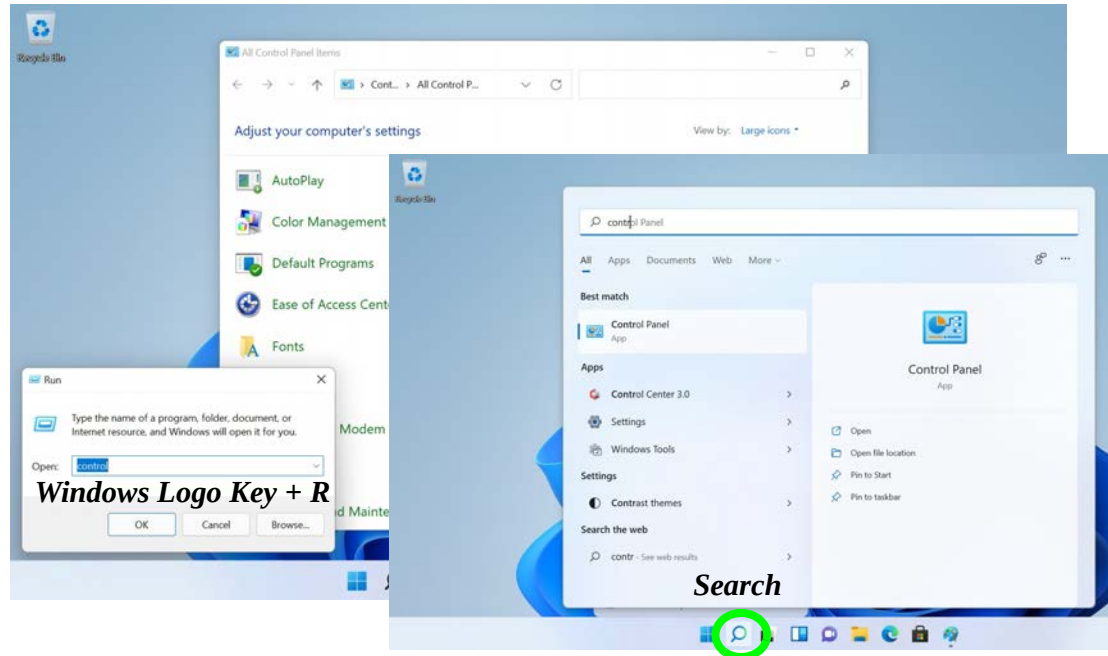


Figure 1 - 10 - Windows Control Panel Access

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.

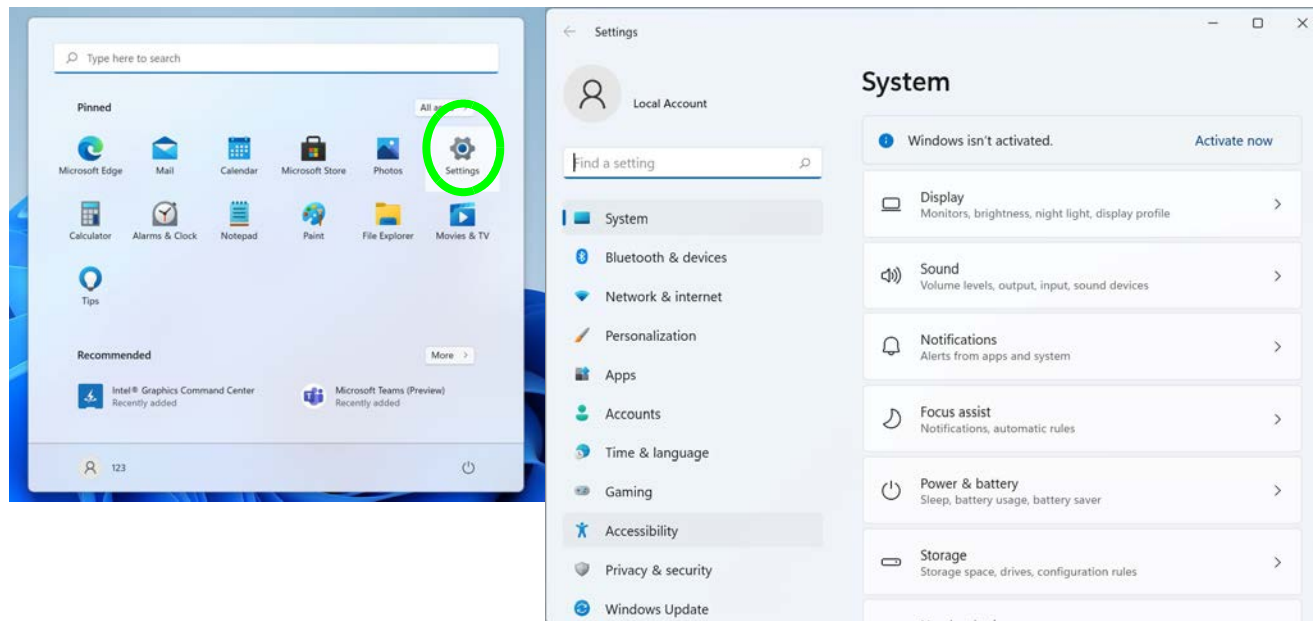


Figure 1 - 11 - Settings

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.

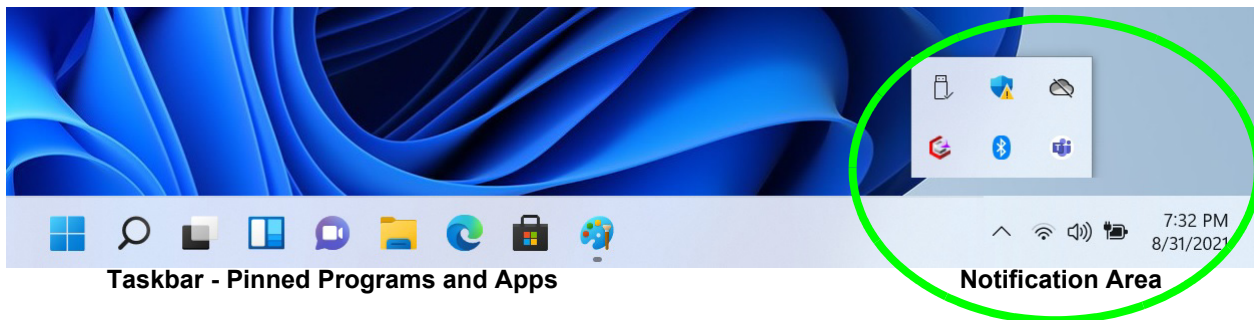


Figure 1 - 12 - Taskbar

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 - 17](#)*).

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).

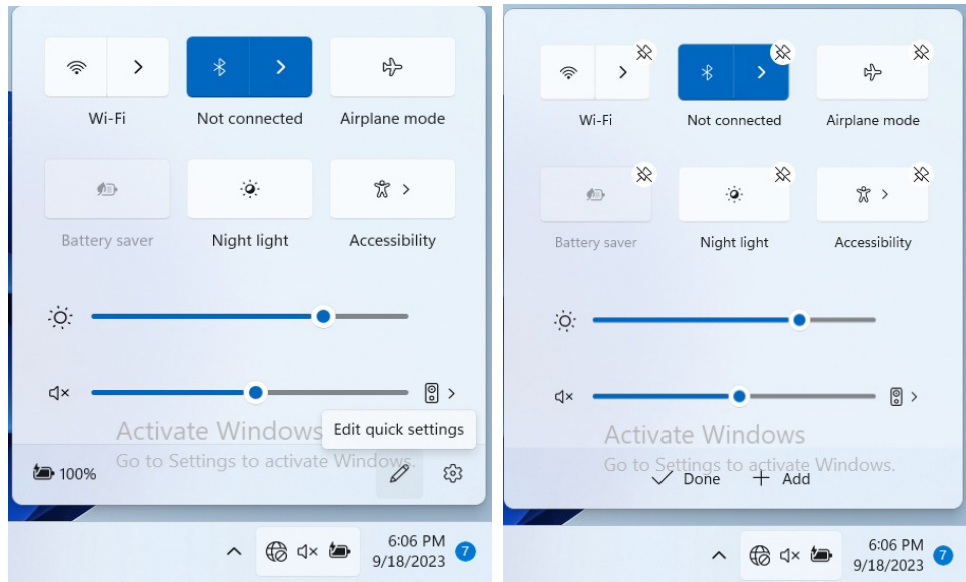


Figure 1 - 13 - Action Center

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 - 23](#)). 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**.

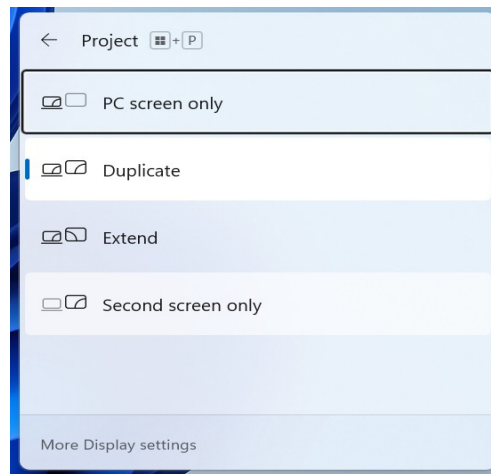


Figure 1 - 14 - Project (Devices)

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 an external display is attached you can arrange the display configuration from **Duplicate these displays** menu.

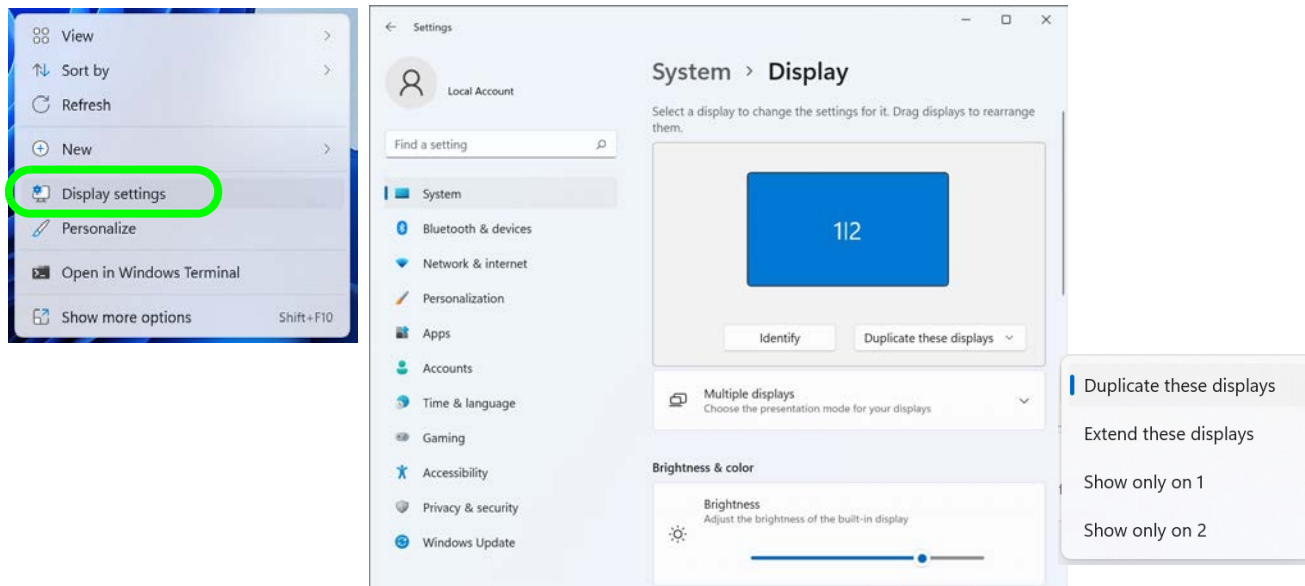


Figure 1 - 15 - Display Settings

Quick Start Guide

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.

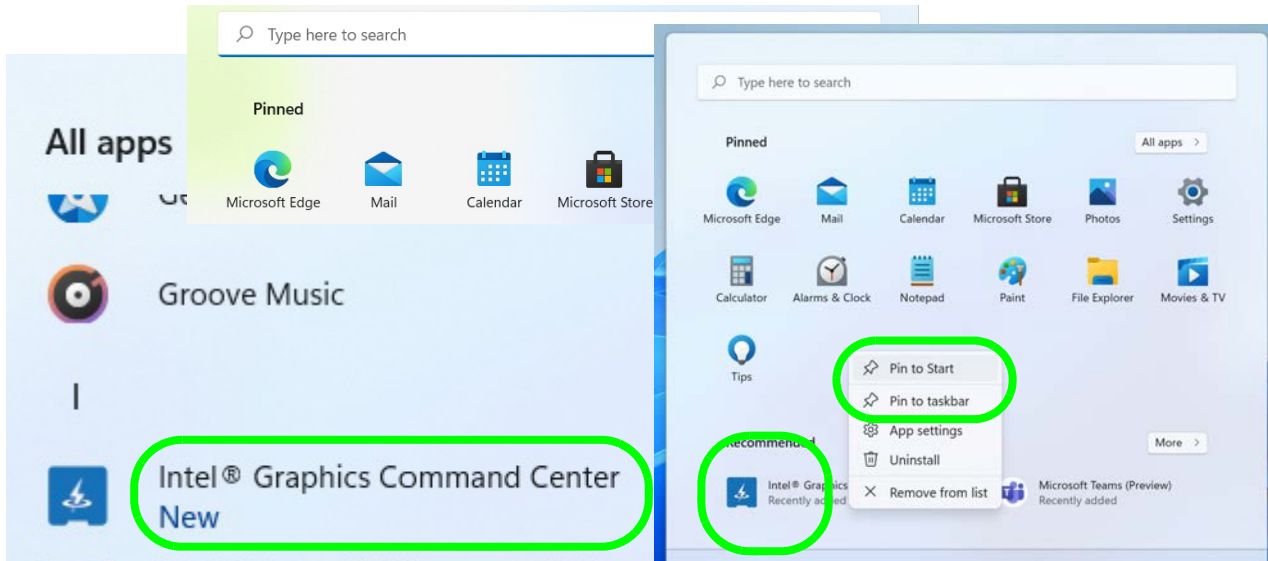


Figure 1 - 16 - Intel® Graphics Command Center Access

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

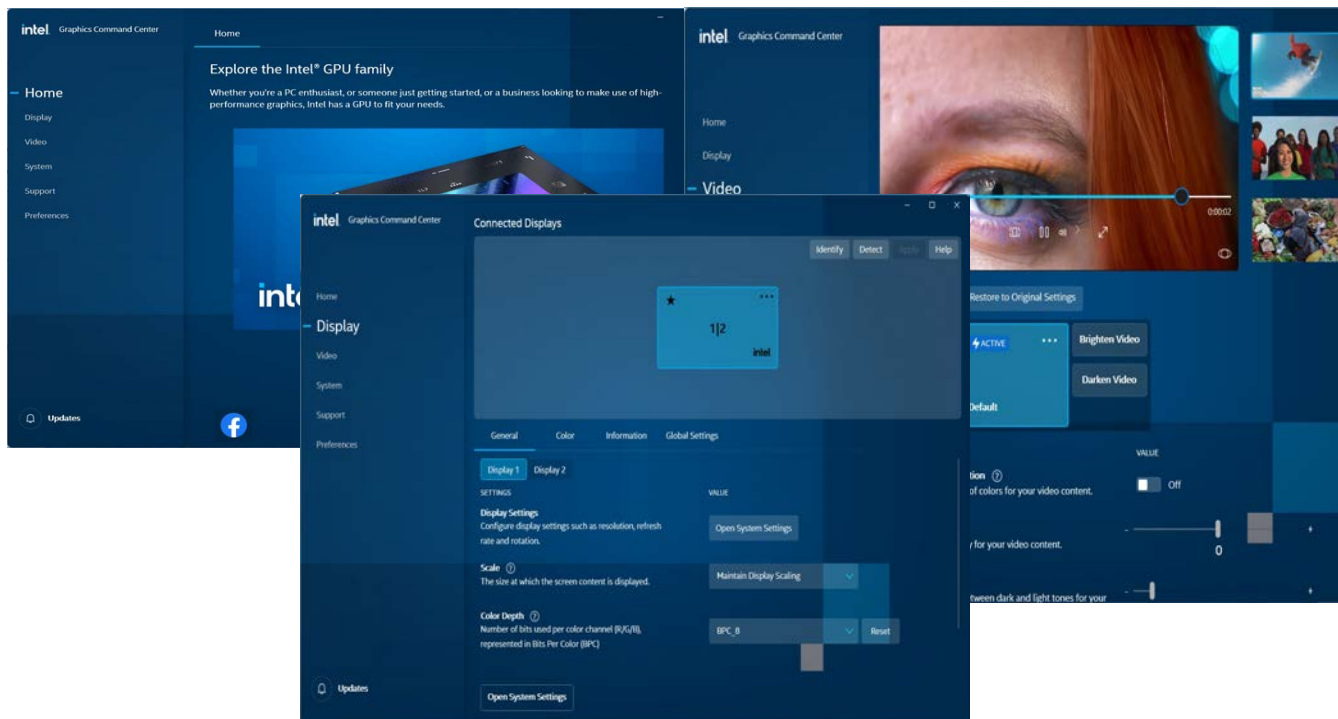


Figure 1 - 17 - Intel® Graphics Command Center

Quick Start Guide

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.

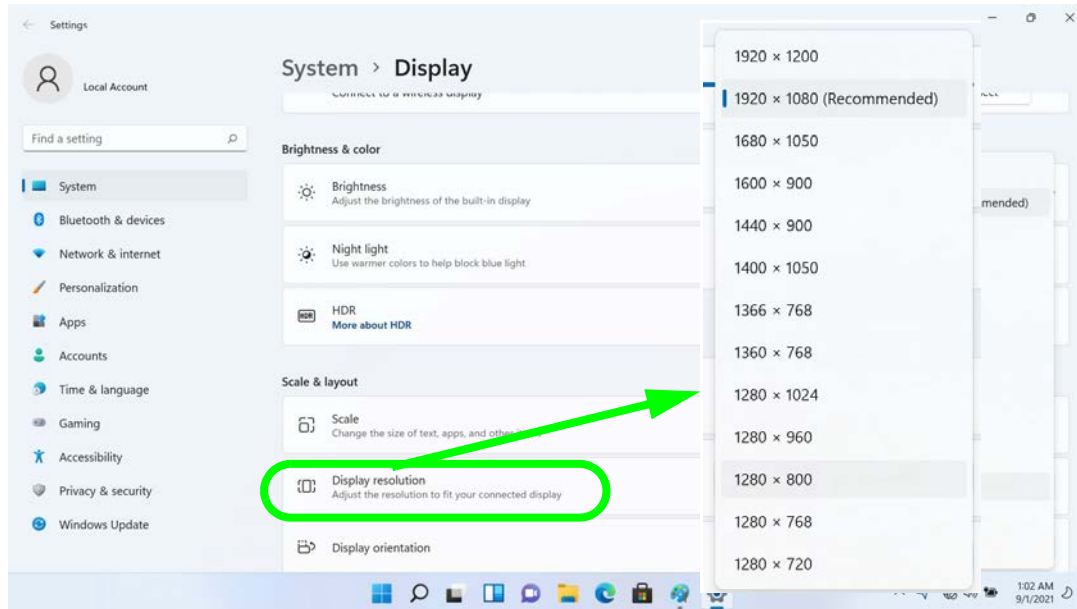


Figure 1 - 18 - Display (Resolution)

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 - 28). The **Power** menu (*this Mini PC does not contain a battery*) 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.

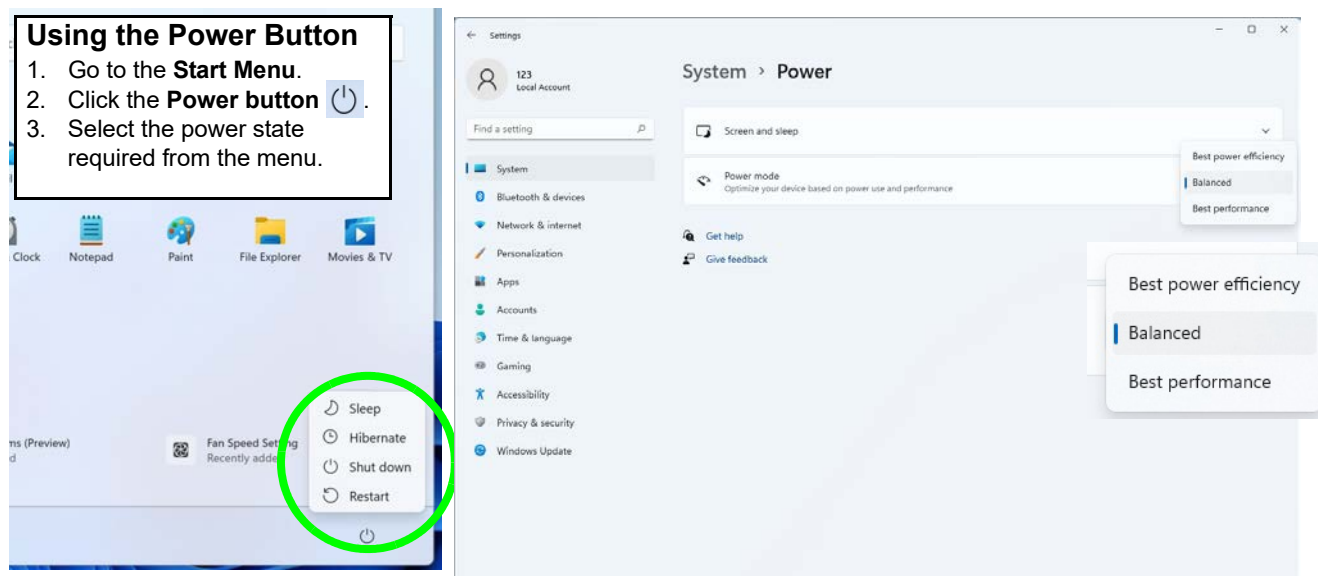


Figure 1 - 19 - Shut Down/Restart & Settings (System) Power & Battery

Quick Start Guide

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

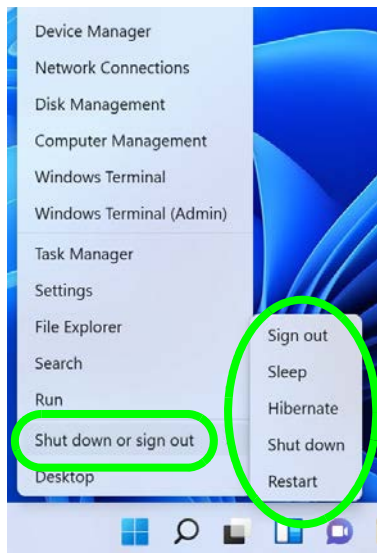


Figure 1 - 20 - Context Menu Shut Down or sign out

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**.



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 - 18](#)*).
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.

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** (see *[“Adding Hibernate/Sleep to the Power Menu” on page 1 - 28](#)*), **Shut down**, and **Restart**.

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.

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 Mini 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.

Resuming Operation

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

Chapter 2: 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 2 - 1, on page 2 - 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 4 - 1.***

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 2 - 1 - Drivers Installer Screen 1

5. Check the driver installation order from **Table 2 - 1, on page 2 - 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 2 - 2 - Install Drivers

Win 11 Drivers (64-bit) System Required	Page #	Win 11 Drivers (64-bit) Other / Options	Page #
<i>Chipset</i>	<i>Page 2 - 7</i>	<i>Wireless LAN</i>	<i>Page 4 - 2</i>
<i>Serial IO</i>	<i>Page 2 - 7</i>	<i>Bluetooth</i>	<i>Page 4 - 7</i>
<i>Video (VGA)</i>	<i>Page 2 - 7</i>	<i>Intel® Speed Shift Technology Driver</i>	<i>Page 4 - 13</i>
<i>LAN</i>	<i>Page 2 - 8</i>	<i>Intel® GNA Driver</i>	<i>Page 4 - 14</i>
<i>CardReader</i>	<i>Page 2 - 8</i>	<i>Intel® Rapid Storage Technology</i>	<i>Page 4 - 15</i>
<i>Intel® HID Filter Driver</i>	<i>Page 2 - 8</i>	<i>Trusted Platform Module</i>	<i>Page 4 - 17</i>
<i>Control Center</i>	<i>Page 2 - 8</i>		
<i>Intel® MEI Driver</i>	<i>Page 2 - 8</i>		
<i>Audio</i>	<i>Page 2 - 9</i>		

Table 2 - 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 **Restart Now** to restart the computer.

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 **Next > Install**.
3. Click **Finish**.

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.

Control Center

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

Intel® MEI Driver

1. Click **8.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**.

After Installing the MEI Driver you will need to manually install the Intel® MEI app. To do so follow the procedure overleaf.

Audio

1. Click **9.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

Chapter 4 contains information on the optional modules, which may come with your computer, depending on the configuration purchased. If you are unsure please contact your service representative.

See the pages indicated in **Table 2 - 1, on page 2 - 4** for the driver installation procedures for any modules included in your purchase option.



Figure 2 - 3 - Optional Drivers Installer Screen

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

Chapter 3: BIOS Utilities

Overview

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

To access and edit BIOS settings you must use an attached keyboard, and a mouse can also be helpful.

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 on an attached keyboard 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** on an attached keyboard **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.



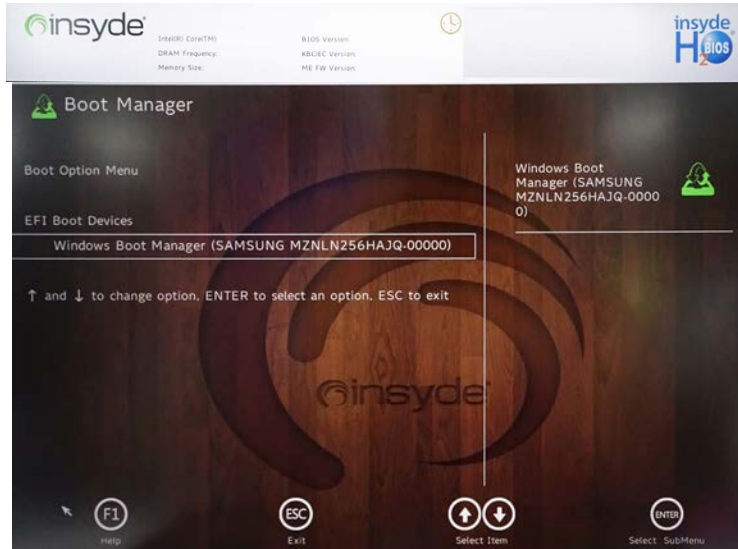
Figure 3 - 1
Insyde BIOS Start Screen

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



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.

Figure 3 - 2
Boot Manager



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

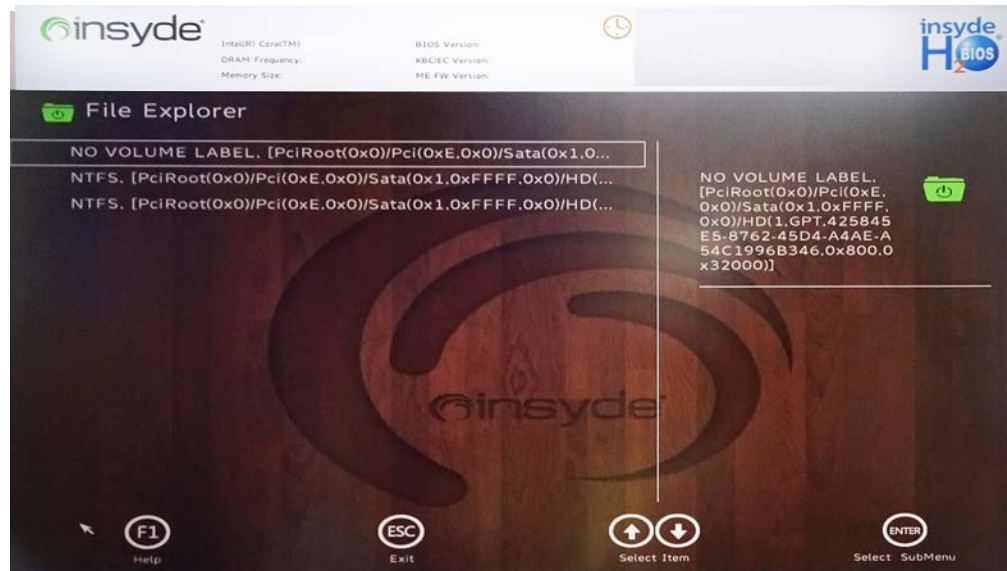


Figure 3 - 3
Boot From File
(File Explorer)

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

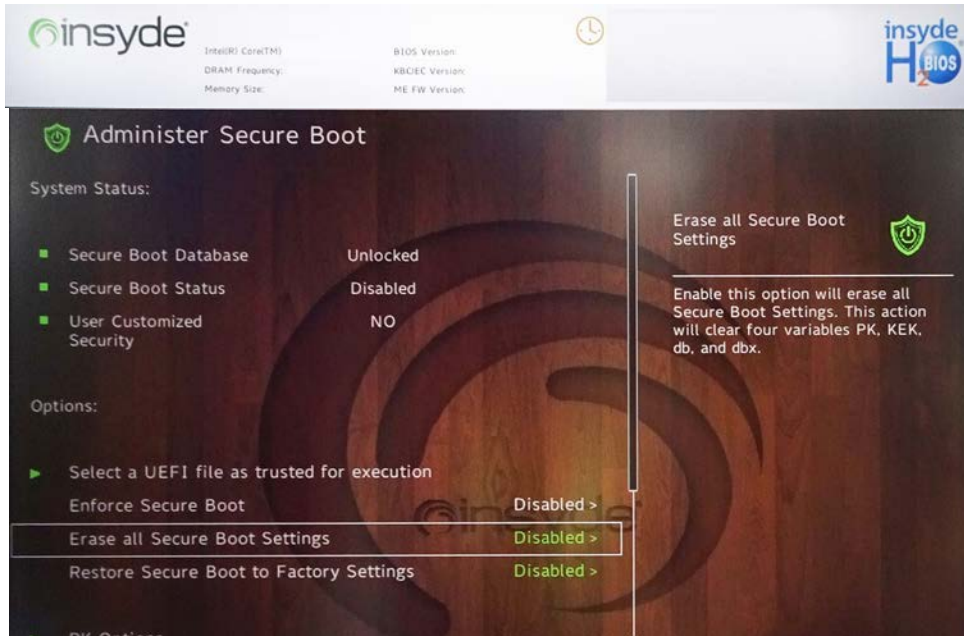


Figure 3 - 4
Administer Secure Boot

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 3 - 5
Administer Secure Boot (Advanced Secure Boot Options)

Setup Utility - Main Menu



Figure 3 - 6
Main (Upper)

System Time & System Date (Main Menu)

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

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

3



Figure 3 - 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 **VT-d** and **UEFI OS Fast Boot**.

Figure 3 - 8
Advanced Chipset Control Menu



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.

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.

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

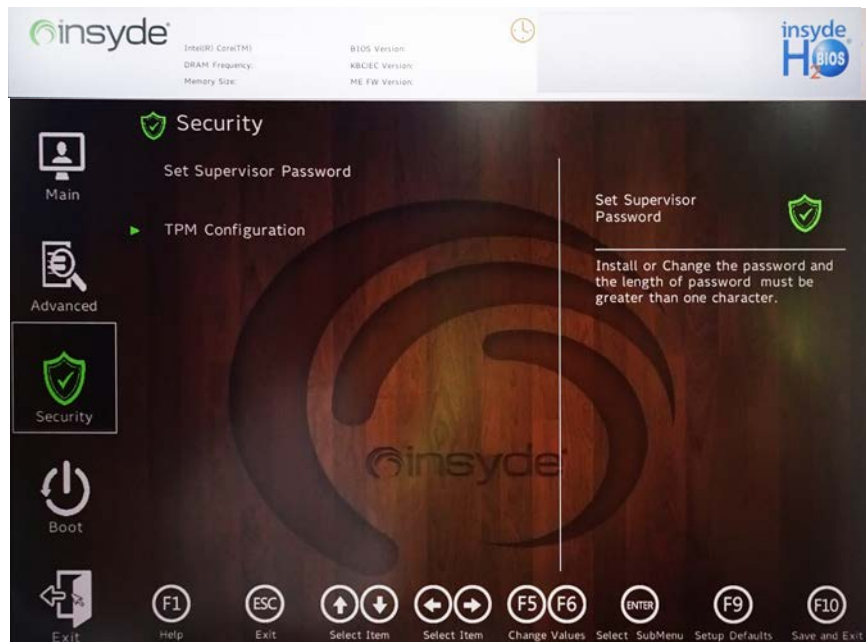
If you have installed the **Windows** OS with **VMD Mode** enabled, **DO NOT** disable the set mode (if you wish to disable the set mode you will need to reinstall the **Windows** OS).

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.

Figure 3 - 9
Security Menu

Setup Utility - 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 4 - 17*).

Figure 3 - 10
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.

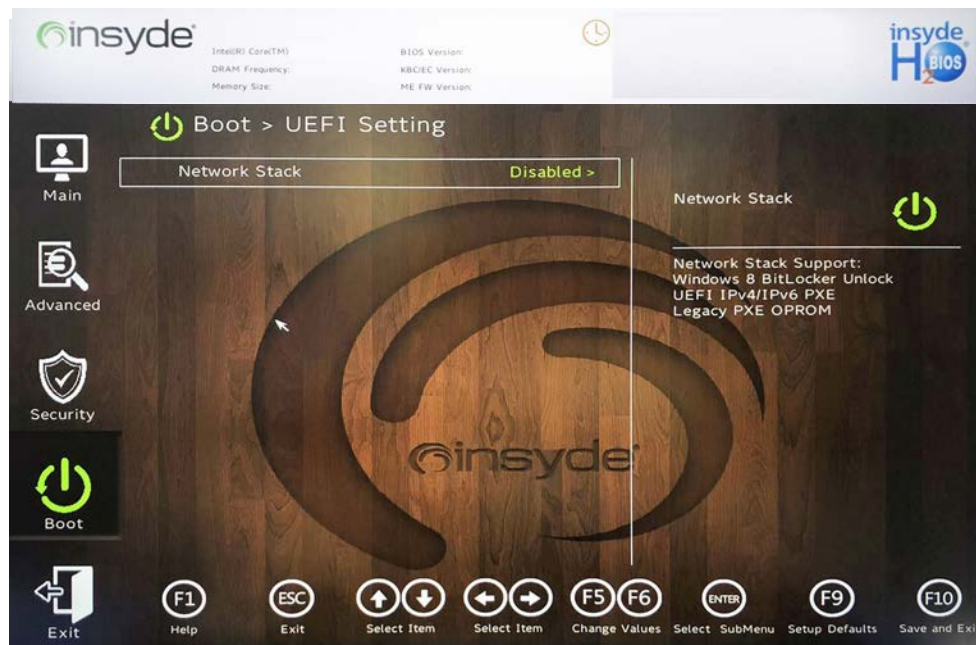
BIOS versions are subject to constant change and revision, therefore your computer's actual screens may appear slightly different from those pictured on these pages.

Figure 3 - 11
Boot Menu

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 3 - 12
UEFI Setting



Setup Utility - Exit Menu



Figure 3 - 13
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.

Chapter 4: 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.

- Wireless LAN
- Bluetooth
- Intel® Speed Shift Technology Driver
- Intel® GNA Driver
- Intel® Rapid Storage Technology
- 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.



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**.

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 2 - 1, on page 2 - 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 4 - 4).



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.

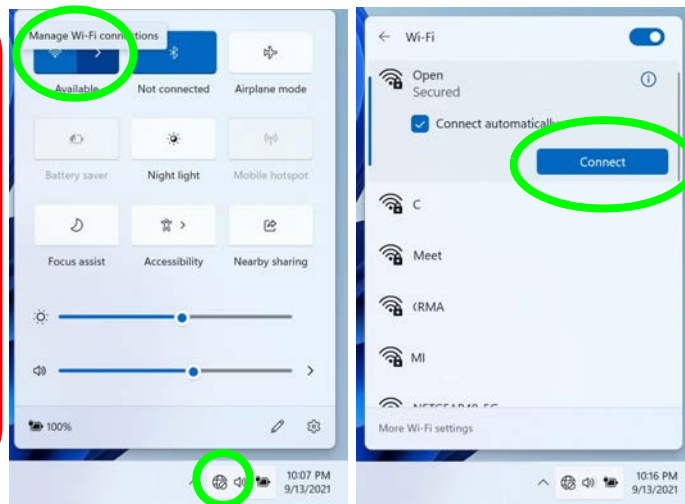
1. Click the Wireless icon   in the notification area of the taskbar.
2. Make sure that **Airplane mode** is **off** (the Airplane mode icon should be gray).
3. Click the **Manage Wi-Fi connections** icon and a list of available access points will appear.
4. Double-click an access point to connect to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

Figure 4 - 1
WiFi & Network Connections

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.



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**  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.

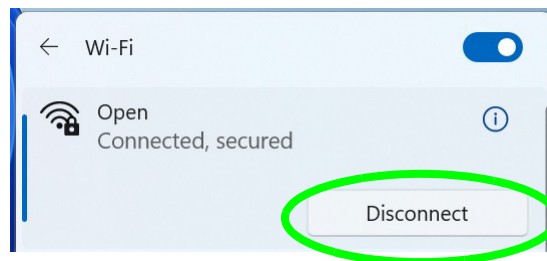


Figure 4 - 2
**Network Connected
(Click Disconnect)**

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**.

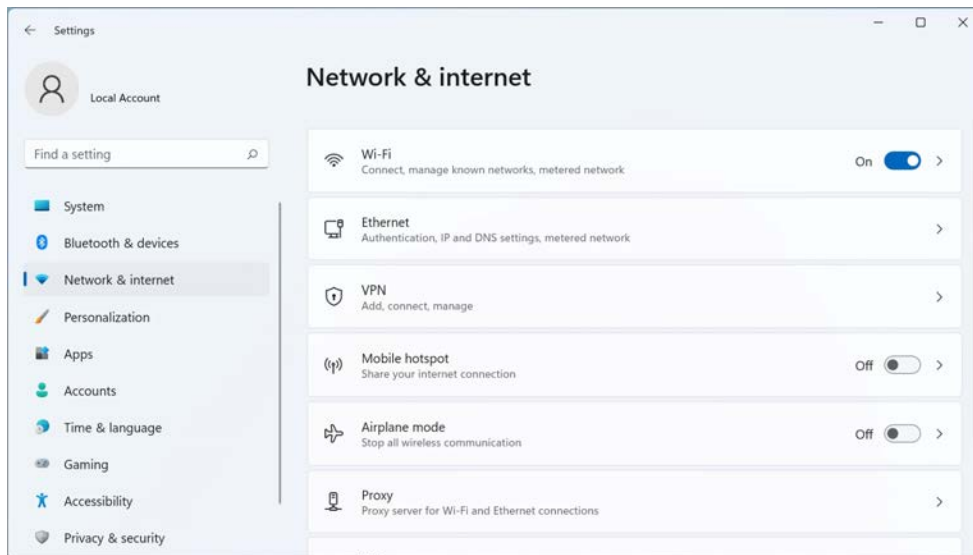


Figure 4 - 3
**Network & Internet
Settings**

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**.



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 4 - 9*** 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.

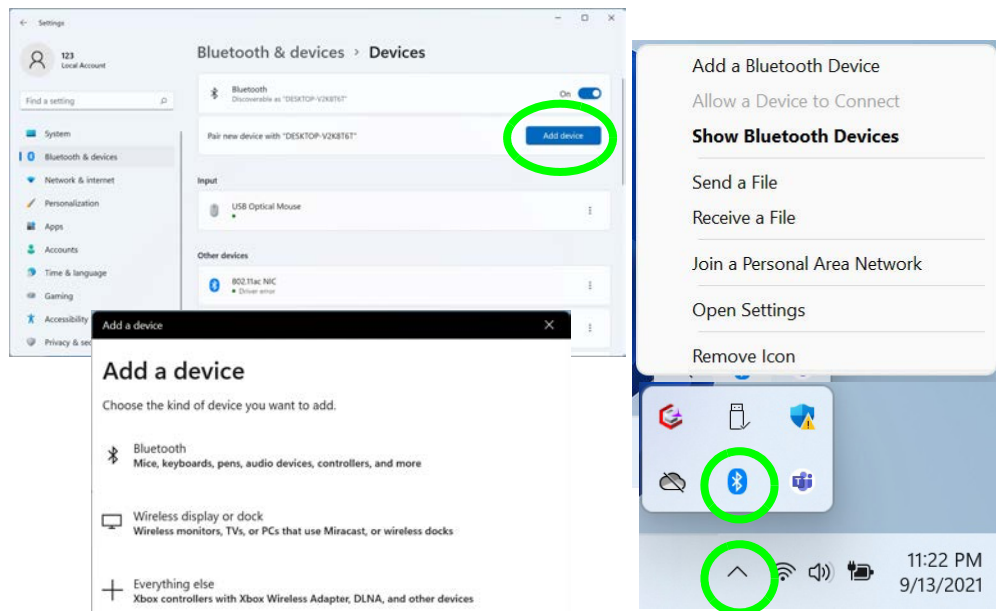


Figure 4 - 4
Settings > Bluetooth & devices (Add Device)

Figure 4 - 5
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)**.

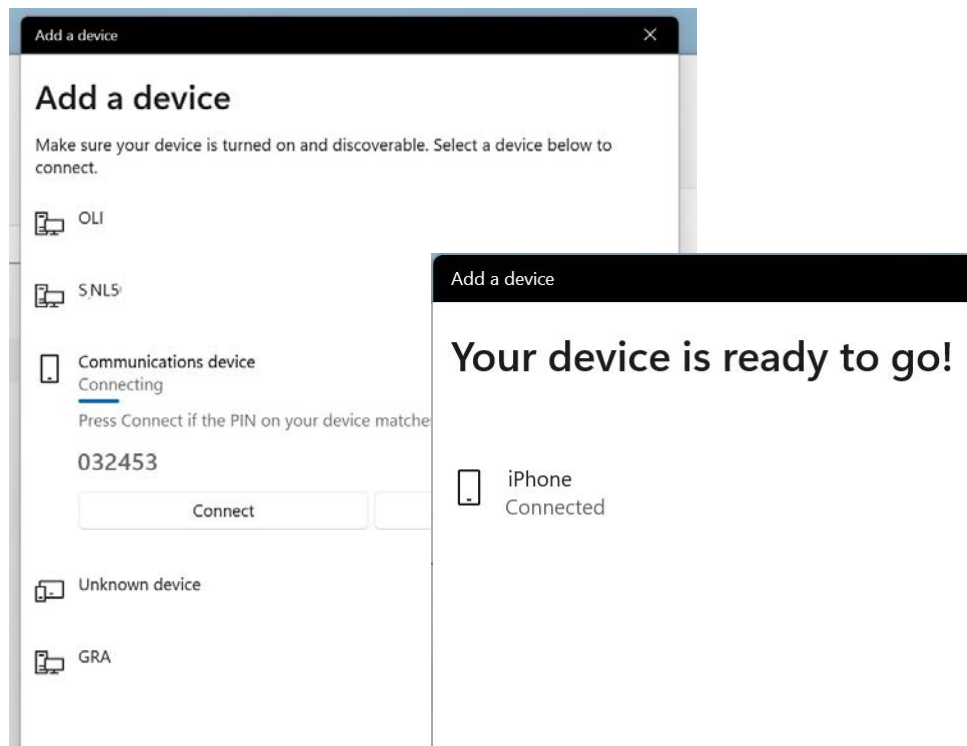


Figure 4 - 6

Bluetooth Connect

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

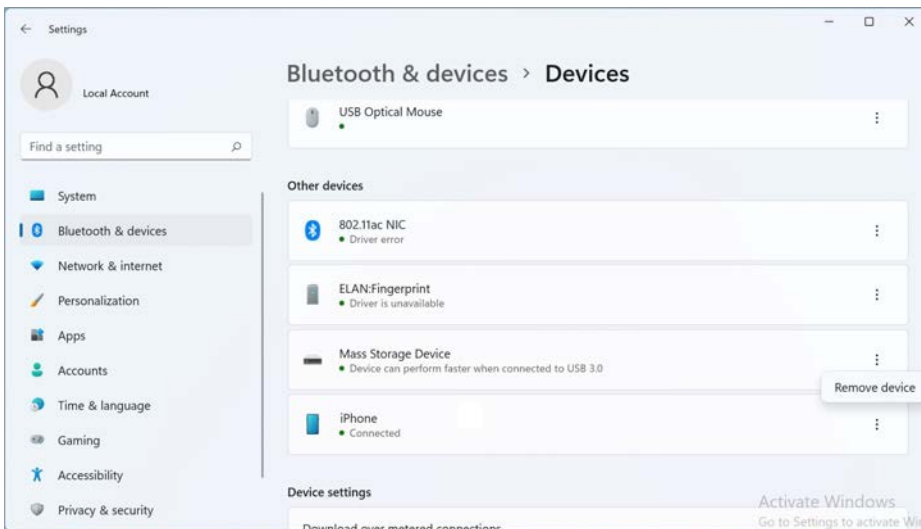


Figure 4 - 7
Bluetooth - Remove Device

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.

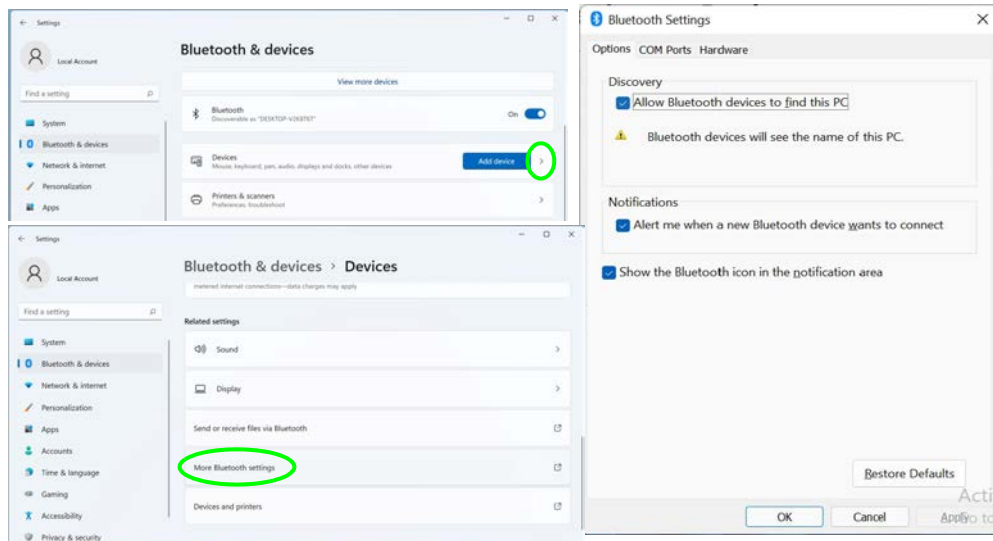


Figure 4 - 8
Bluetooth Settings

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 handling 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® 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 **5.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** 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.



Driver Uninstall Warning

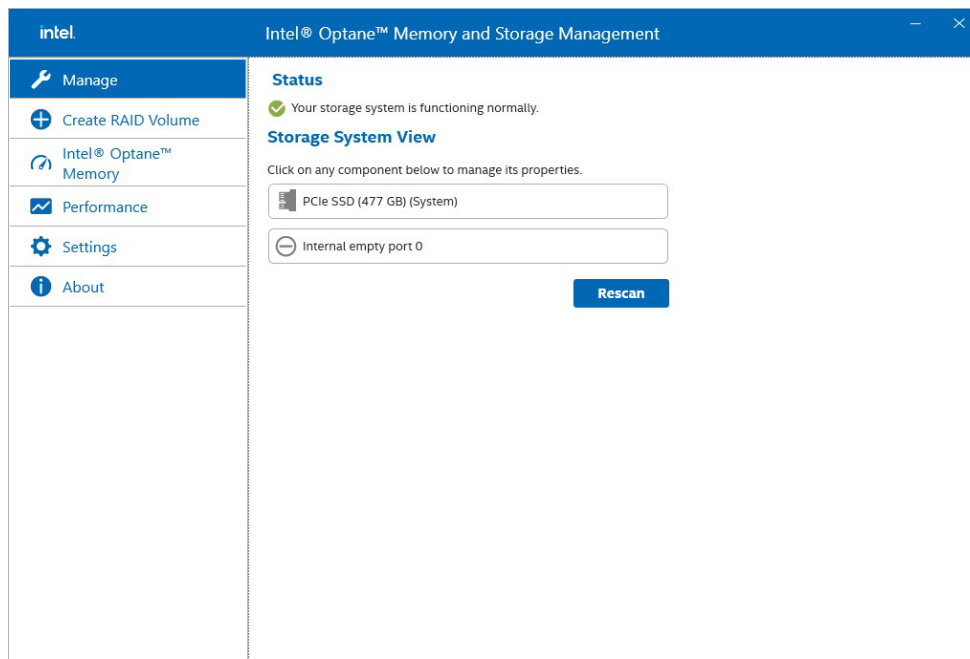
After setting the VMD mode to Intel® Optane™ and installing the IRST driver and Intel® Optane™ Memory and Storage Management application, **DO NOT** uninstall the driver and application.

Intel® 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**).

4

Figure 4 - 9
**Intel® Optane™
Memory & Storage
Management**



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 re-set the TPM.

Figure 4 - 10
Security - Trusted Computing

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.



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**.

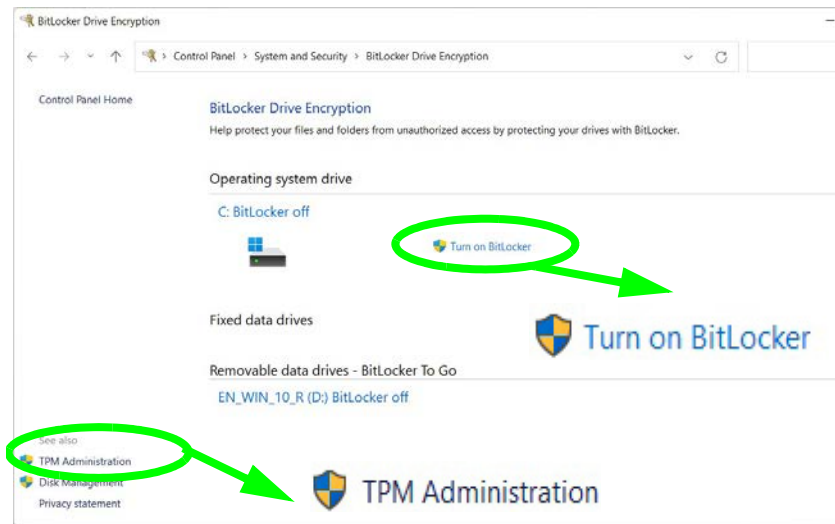
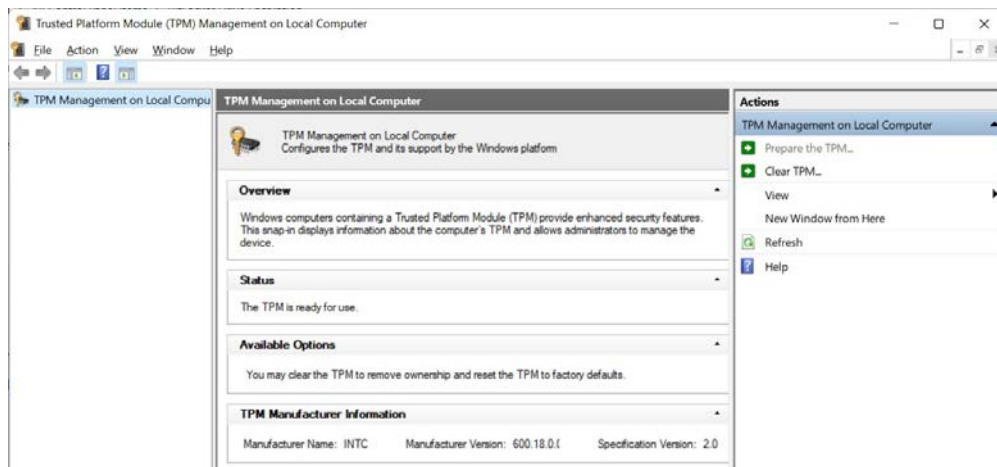


Figure 4 - 11
BitLocker Drive Encryption (TPM Administration)

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

Figure 4 - 12
TPM Administration



- 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 5: 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 - 7*) 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 either keys on an attached keyboard or the power button on your computer. Press any key on your attached keyboard as this system supports *Modern Standby*, or use power button to wake-up the system from **Hibernate**.
- **Brightness** - You can use the screen brightness controls to adjust the brightness or pressing an appropriate key combination on your attached keyboard if supported.
- **Display Choice** - Check the display configuration for any attached displays.
- **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 storage device(s) 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 ***“BIOS Utilities” on page 3 - 1***).
- 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
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.
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.
Nothing appears on screen.	<i>The system is in a power saving mode.</i> Press any key on an attached keyboard, or press the power button. <i>The screen controls need to be adjusted.</i> Check the external display and make sure it's plugged in and turned on. You should also check the monitor's own brightness and contrast controls. <i>The screen saver is activated.</i> Press any key on an attached keyboard.
When playing a video in Media Player , while using a 4K panel , the counting timer area at the bottom of the screen appears to be cut off slightly .	<i>The size of text, apps and other items in Settings > System > Display is set to 250%.</i> In this case it is recommended that the setting should be less than 250% .

Troubleshooting

5

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.	<i>This is a DirectX compatibility issue. In this case disable DirectX from within the game controls.</i>
You forget the boot password.	<i>If you forget the password, you may have to discharge the battery of the CMOS. Contact your service representative for help.</i>
 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.	<i>The volume might be set too low. Check the volume control in the Volume Control Panel in the Windows notification area, or on any attached display and/or speakers.</i>
There is no sound from the Microphone.	<i>The microphone volume is toggled off or is too low. Check the microphone setting in Settings > System > Input in Windows.</i>
Unwelcome numbers appear when typing.	<i>The attached keyboard has Num Lock turned ON.</i>

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. 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.	<i>If this is the case, the driver will need to be removed from the Device Manager.</i> 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.
Gaming performance is slow.	<i>It is recommended that you use Maximum fan speed when playing games.</i> Use the Control Center to adjust the fan speed.
The Wireless LAN/Bluetooth modules cannot be detected.	<i>The modules are off as the computer is in Airplane Mode.</i> Go to the Charms Bar and select Settings and then click the WiFi icon (Airplane mode should be Off).
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 4 - 1).

Troubleshooting

5

Problem	Possible Cause - Solution
A file cannot be copied to/from a connected Bluetooth device.	<i>The transfer of data between the computer and a Bluetooth enabled device is supported in one direction only (simultaneous data transfer is not supported). If you are copying a file from your computer to a Bluetooth enabled device, you will not be able to copy a file from the Bluetooth enabled device to your computer until the file transfer process has been completed.</i>
When using a Bluetooth headset the audio appears to be mono and not stereo.	<i>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):</i> 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.

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

Chapter 6: Disassembly

Overview

If you need to open the computer for any reason (e.g. for upgrade or part replacement), please check with your service representative before undertaking any upgrade procedures to find out if this will VOID your warranty.

Maintenance Precautions

The following precautions are a reminder. To avoid personal injury or damage to the computer while performing a removal and/or replacement job, take the following precautions:

1. **Don't drop it.** Perform your repairs and/or upgrades on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it.** Note the proximity of any heating elements. Keep the computer out of direct sunlight.
3. **Avoid interference.** Note the proximity of any high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage components and/or data. You should also monitor the position of magnetized tools (i.e. screwdrivers).
4. **Keep it dry.** This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power.** Avoid accidental shocks, discharges or explosions.
6. Before removing or servicing any part from the computer, turn the computer off and detach any power supplies.
7. When you want to unplug the power cord or any cable/wire, be sure to disconnect it by the plug head. Do not pull on the wire.
8. **Peripherals** – Turn off and detach any peripherals.
9. **Beware of static discharge.** ICs, such as the CPU and main support chips, are vulnerable to static electricity. Before handling any part in the computer, discharge any static electricity inside the computer. When handling a printed circuit board, do not use gloves or other materials which allow static electricity buildup. **We suggest that you use an anti-static wrist strap instead.**
10. **Beware of corrosion.** As you perform your job, avoid touching any connector leads. Even the cleanest hands produce oils which can attract corrosive elements.
11. **Keep your work environment clean.** Tobacco smoke, dust or other air-born particulate matter is often attracted to charged surfaces, reducing performance.

12. **Keep track of the components.** When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.



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). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Disassembly

Bottom Cover Removal

1. Turn **off** the computer, turn it over.
2. Use a type 2 Phillips head screwdriver (Torque setting 3 kgf-cm) to loosen screws **1** - **4** from the bottom cover **5** (the screws are not removed, just loosened sufficiently to allow you to carefully ease up the bottom cover).



Screwdriver Use

Use only the screws provided with the unit, and only use a Type 2 Phillips head screwdriver to tighten the screws.

Using a screwdriver which is too small, or too large, risks causing damage to the screws. If you are using an adjustable torque screwdriver then use a torque setting of 3 kgf-cm.



Figure 6 - 1 - Bottom Cover Screws

3. Carefully (there are cables connected) lift the bottom cover **5** up in the direction of the arrow **6**, as illustrated below.

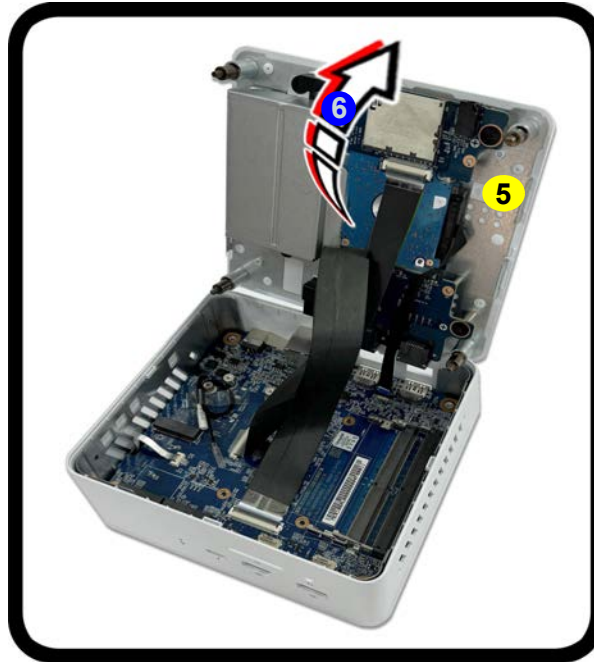


Figure 6 - 2 - Bottom Cover Up

Disassembly

4. You can then access the inner components of the computer, but to proceed further you should disconnect cables **7** - **9** from the locking collar sockets on the mainboard.
5. You can then separate the bottom cover case assembly **10** from top case and mainboard assembly **11**.



Locking Collar Sockets

To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base.

When replacing the connection, make sure the connector is oriented in the same way.

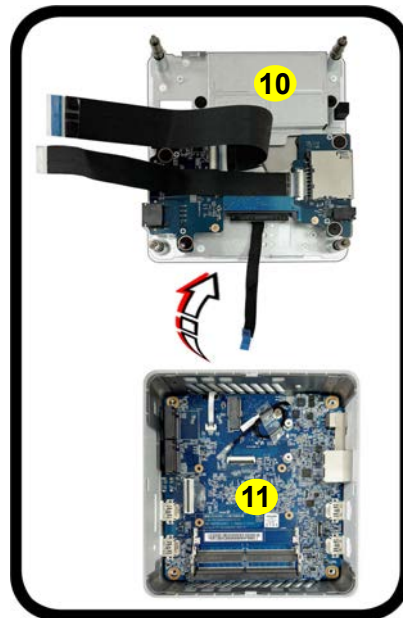
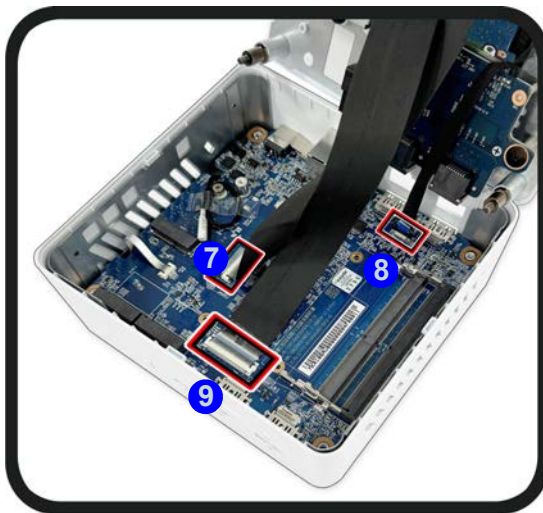
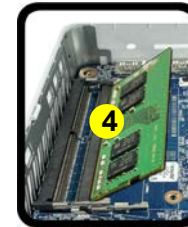
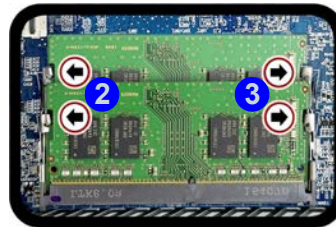


Figure 6 - 3 - Cables & Assemblies

System Memory Removal

The computer has two memory sockets for 262 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR5 5200MHz. The main memory can be expanded up to 64GB. The total memory size is automatically detected by the POST routine once you turn on your computer.

1. When the bottom cover is removed (see [page 6 - 4](#)) the RAM modules will be visible at point **1** on the main-board.
2. Gently pull the two release latches (**2** & **3**) on the sides of the memory socket in the direction of the arrows.
3. The RAM module **4** will pop-up, and you can then remove it.



Contact Warning

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

Figure 6 - 4- Memory Module Removal

Disassembly

4. Pull the latches to release the second module if necessary.
5. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
6. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE IT; it should fit without much pressure.
7. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
8. Replace the bottom case and the screws.
9. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

Hard Disk Drive Removal

1. When the bottom cover is removed (see [page 6 - 4](#)) the HDD (Hard Disk Drive) will be visible at point **1** on the mainboard.
2. Remove the screws **2** - **5** from the HDD assembly.
3. Disconnect the hard disk **6** from the connector cable **7** to remove the hard disk.

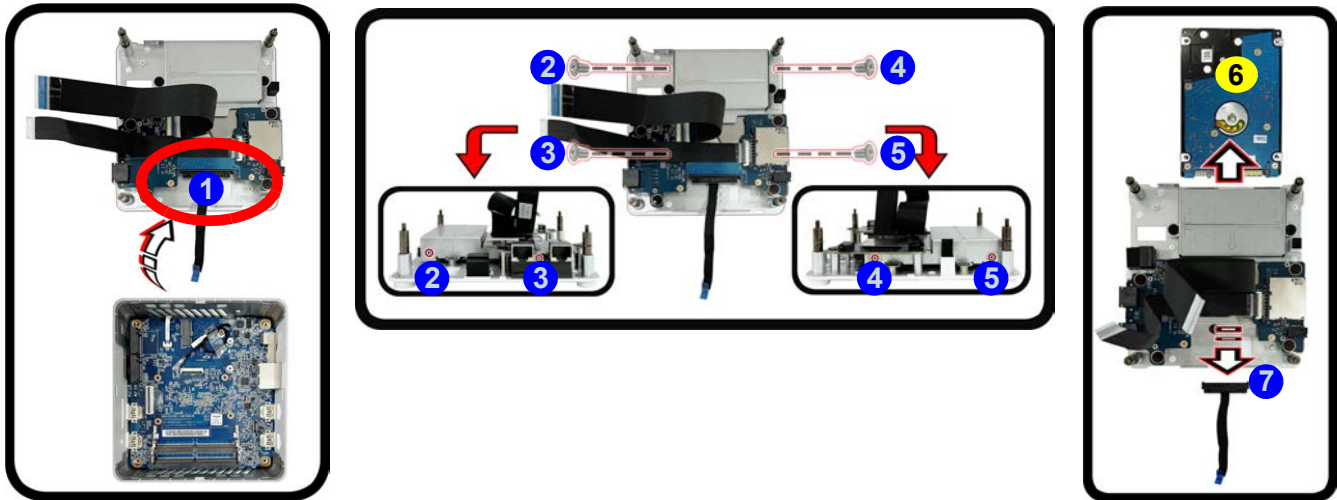


Figure 6 - 5 - HDD Removal

Disassembly

Hard Disk Drive Insertion

1. With the HDD removed (see [page 6 - 9](#)) you can then insert the new HDD.
2. Insert hard disk **1** in place and connect the hard disk to the connector cable **2**.
3. Tighten the screws **3** - **6** on the HDD assembly.
4. Carefully reconnect the cables **7** - **9** and then the bottom cover (see [page 6 - 12](#)).

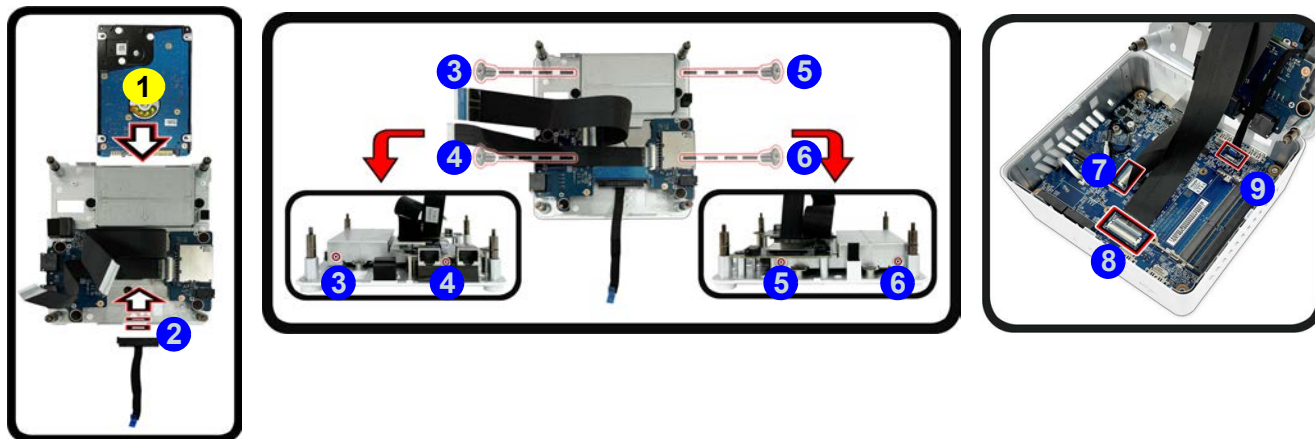


Figure 6 - 6 - HDD Insertion

Removing the M.2 SSD Module(s)

1. When the bottom cover is removed (see [page 6 - 4](#)) the M.2 SSD module will be visible at point **1** on the main-board.
2. Remove the screw **2**
3. The M.2 SSD module **3** will pop-up, and you can remove it from the computer.
4. Reverse the process to install a new module (do not forget to replace the screws and make sure that the thermal pad **4** is attached), then replace the bottom cover (see [page 6 - 12](#)).

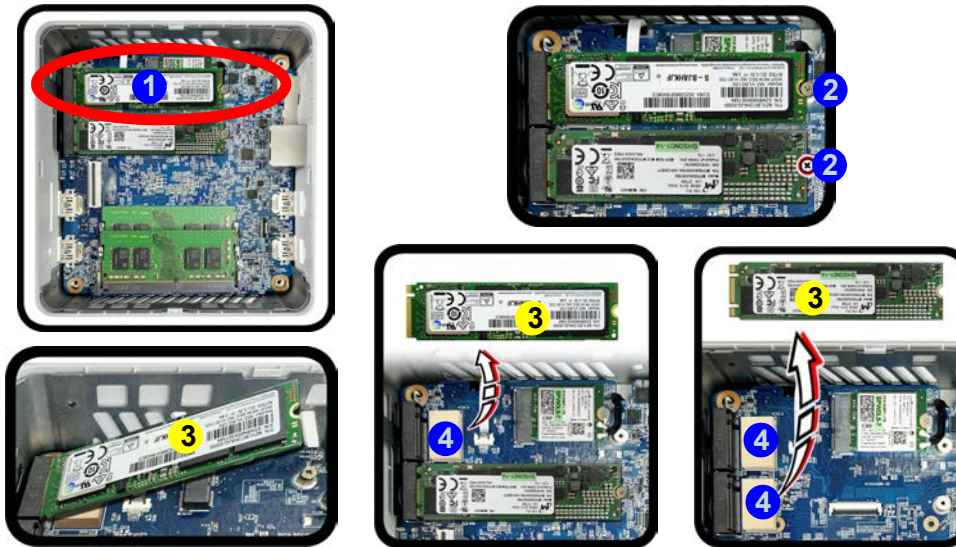


Figure 6 - 7 - SSD Module Removal



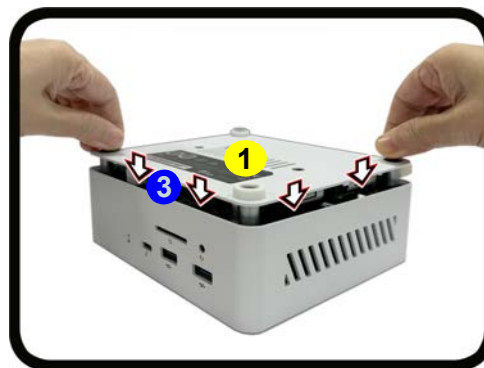
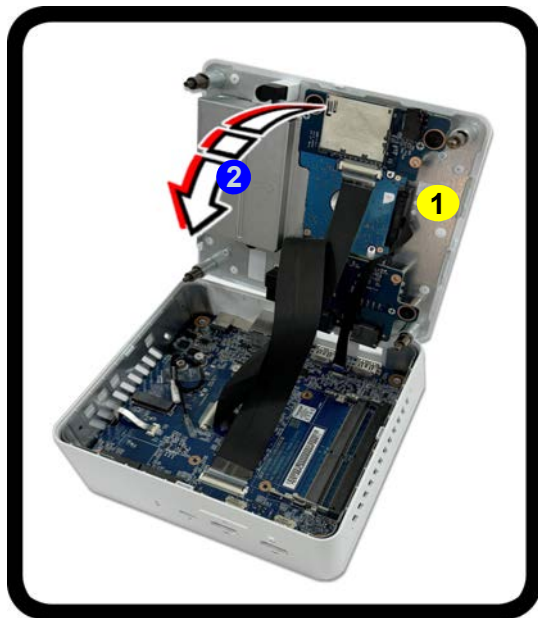
Thermal Pad

Make sure to place the thermal pad's adhesive side down on the main-board's surface as illustrated.

Disassembly

Bottom Cover Insertion

1. Carefully insert the bottom cover **1** on the computer as shown in the direction of the arrow **2**. **Make sure you keep the rear ports **3** clear of the computer case when inserting the bottom cover.**



Contact Warning

Make sure you keep the rear ports clear of the computer case when inserting the bottom cover.
When replacing the connection, make sure the connector is oriented in the same way.

Figure 6 - 8 - Inserting the Bottom Cover Assembly

2. Use a type 2 Phillips head screwdriver (Torque setting 3 kgf-cm) to tighten screws ① - ④ onto the bottom cover.



Figure 6 - 9 - Screws

3. After every disassembly, make sure that the bottom case's screws are all inserted and tightened before turning the computer on.

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.
Multi-In-1 Card Reader 	The card reader allows you to use some of the latest digital storage cards. Push the card into the slot and it will appear as a removable device. • MMC (MultiMedia Card) / RSMMMC • SD (Secure Digital) / Mini SD / SDHC / SDXC
DC-In Jack 	Plug the supplied standard AC/DC adapter into this jack to power your computer (<i>the optional Type C adapter then plugs into the Thunderbolt 4 combo port with Power Delivery DC-In</i>).
HDMI-Out Port HDMI	The HDMI-Out (High-Definition Multimedia Interface) is an audio/video connector interface for transmitting uncompressed digital streams. This allows you to connect an external monitor, TV or Flat Panel Display etc. as a display device by means of a HDMI cable. Note that HDMI carries both audio and video signals.

Interface (Ports & Jacks)

Item	Description
DisplayPort 1.4 	The DisplayPort, which is a digital display interface standard that allows a digital audio/video interconnect, between the computer and its external display or a home-theater system.  DisplayPort Cables When using cables connected to the DisplayPort, try to make sure that the cables are not bent excessively, as bending the cables may cause signal problems.
RJ-45 LAN Jacks 	These 2 ports support LAN (Network) functions (you will need to open the cover slightly before inserting a LAN cable). 1 port supports a bandwidth of 2.5 gbps, and the other 1 gbps. Note: Broadband (e.g. ADSL) modems usually connect to the LAN jack.
Security Lock Slot 	To prevent possible theft, a Kensington-type lock can be attached to this slot. Locks can be purchased at any computer store.

A

Interface (Ports & Jacks)

Item	Description
1 * Thunderbolt™ 4 Port  & 1 * Thunderbolt™ 4 Combo Port with Power Delivery DC-In  	Thunderbolt 4 ports allow 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 maximum amount of current supplied by the Thunderbolt™ 4 port is 5V/1.5A. The rear 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 at 20V/65W.  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 "<i>Thunderbolt Device Name</i>". 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.

Item	Description
USB 3.2 Gen 2 Type A & PortS 	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 3.2 (Gen 2) ports are capable of 10Gbps (SuperSpeed USB 10Gbps) Note: The maximum amount of current supplied by the USB ports is 900 mA for USB 3.2.

Interface (Ports & Jacks)

A

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 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.



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.



External Displays

You can use external displays connected to the HDMI-Out port, Display Port and 2 * Thunderbolt™ 4 Ports (a total of 4 displays. can be supported if the rear Thunderbolt™ 4 is not used to supply power).

Configure Attached 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** key combination on your attached keyboard.
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**.

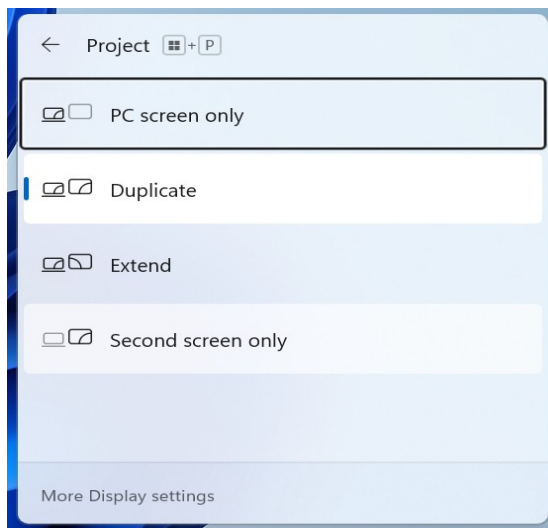


Figure B - 1
Project

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.

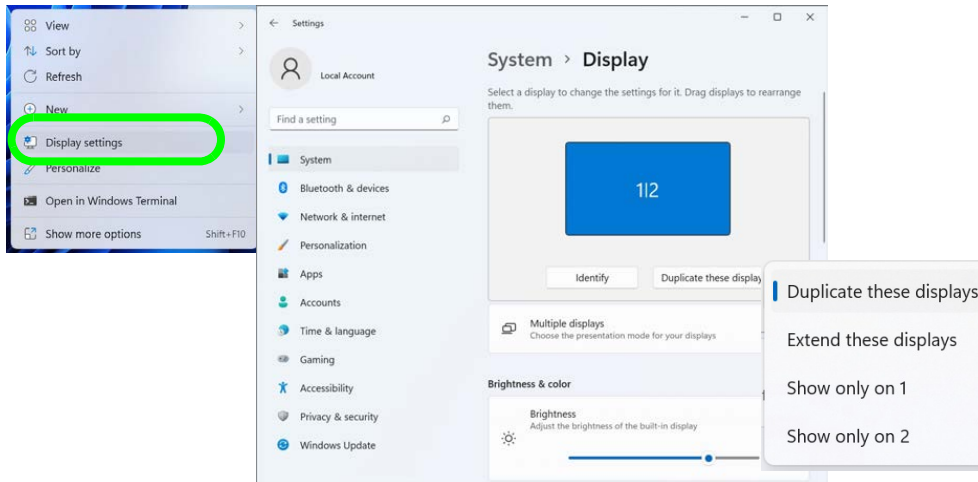


Figure B - 2
**Settings > System
> Display
(Multiple Displays)**

B

Video Driver Controls



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.

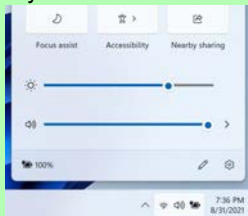


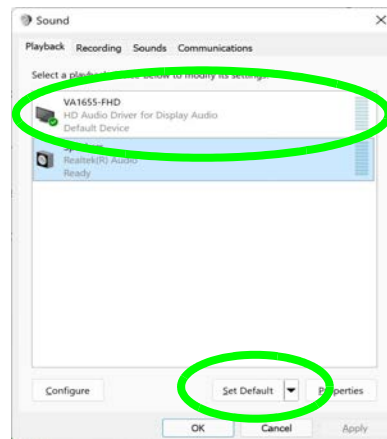
Figure B - 3

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.

B - 4 HDMI Audio Configuration

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.



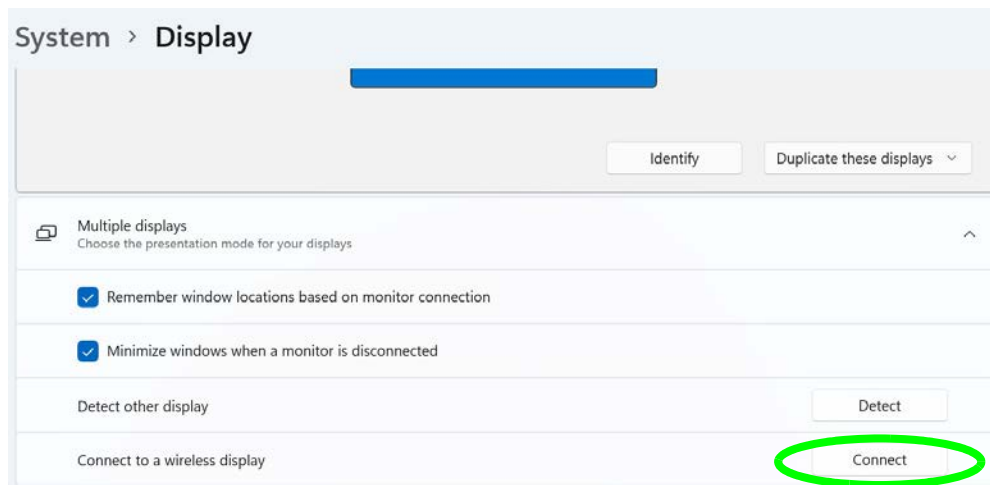
Other Applications

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).

Wireless Display Configuration

1. Note that no driver or application is required for wireless display in **Windows 11**.
2. Press the **Win + 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**.

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**.

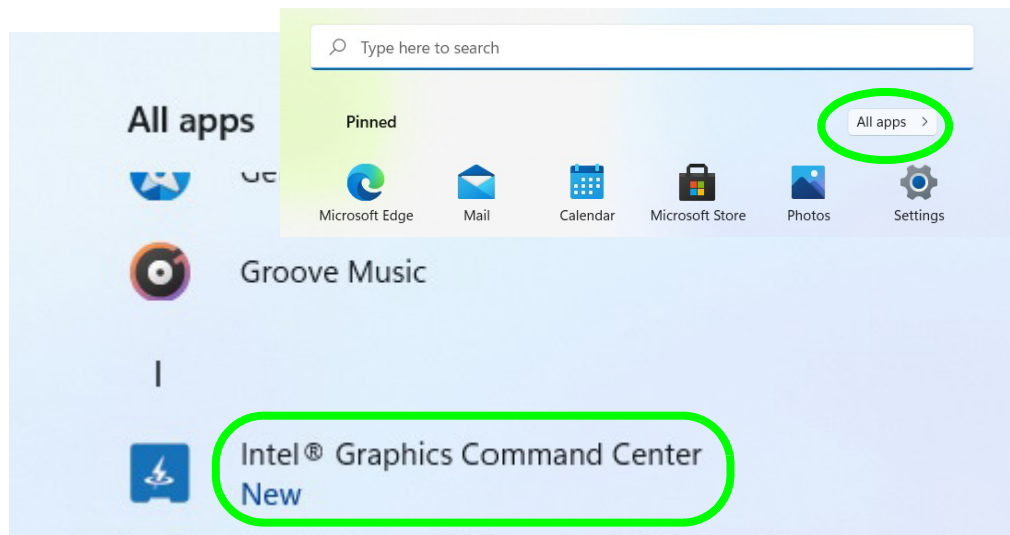
Video Driver Controls

Intel® Graphics Command Center

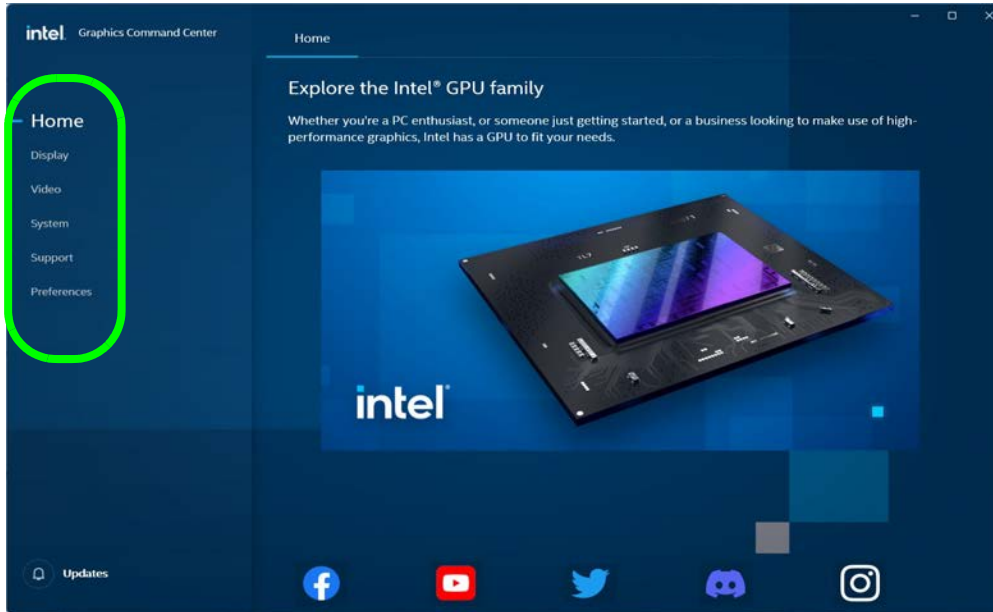
Advanced video configuration options are provided by the **Intel Graphics Command Center**.

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)



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

Video Driver Controls



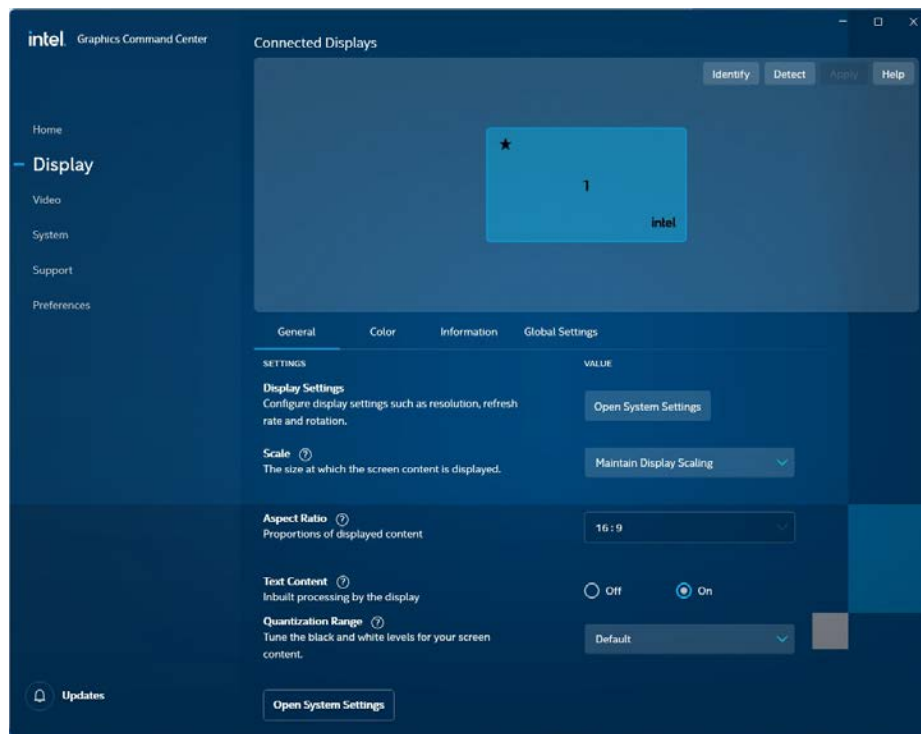
Multiple Display

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

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

Display

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



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.

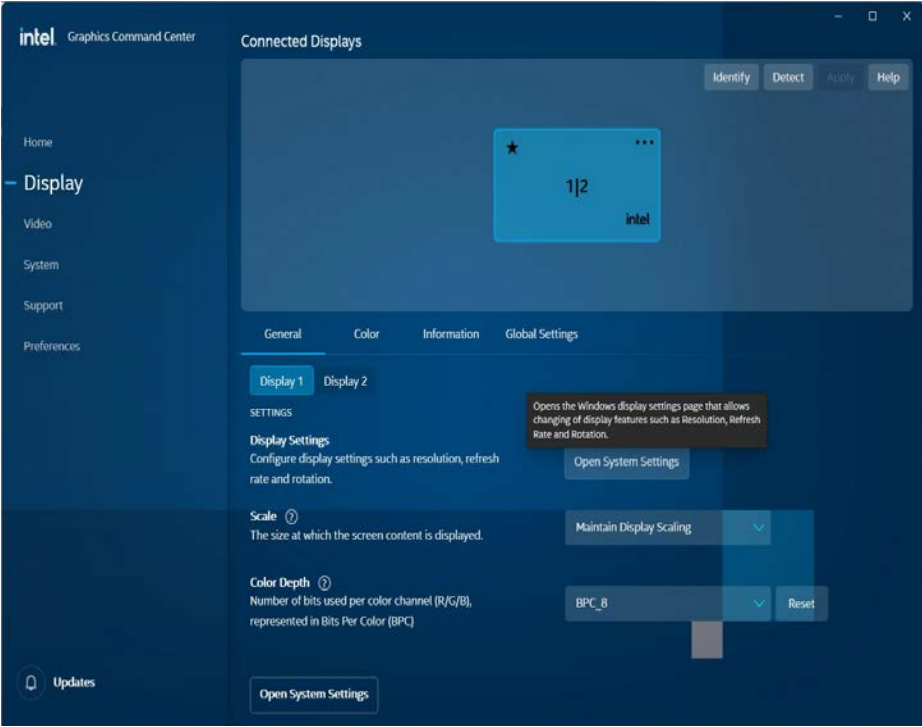


Figure B - 8
**Intel® Graphics
Command Center
(Display)**

B

Video Driver Controls



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.

With 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.

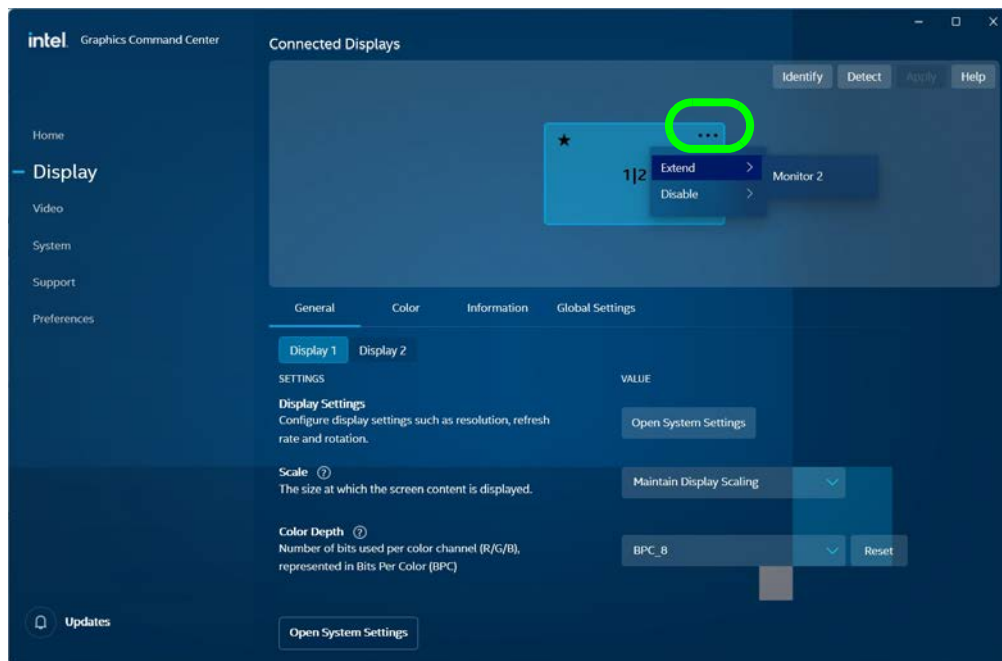


Figure B - 9
**Intel® Graphics
Command Center
Connected Displays**

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**.

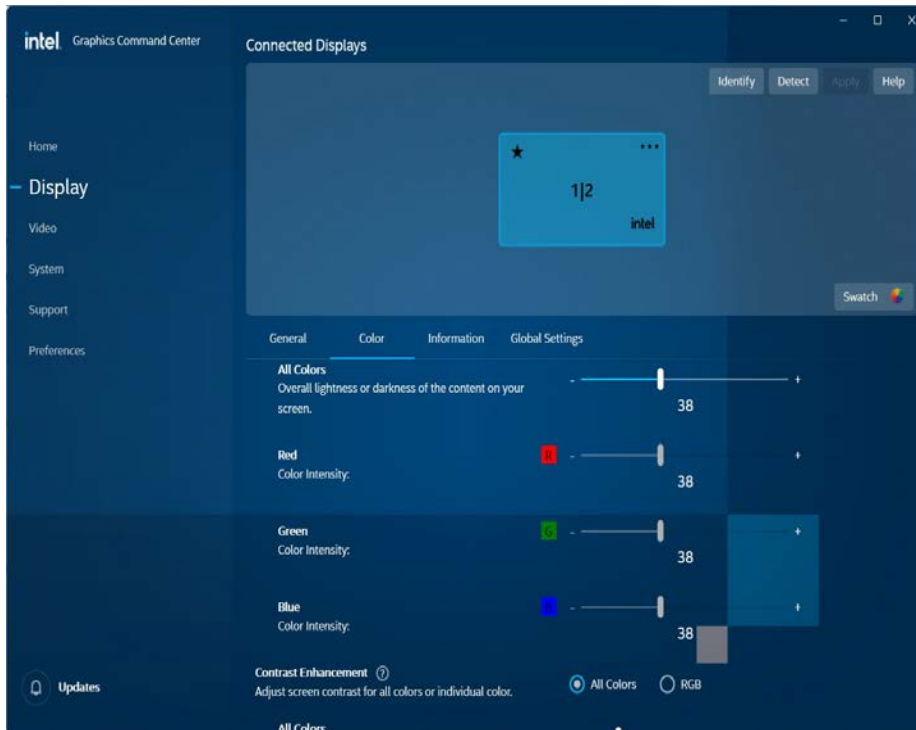
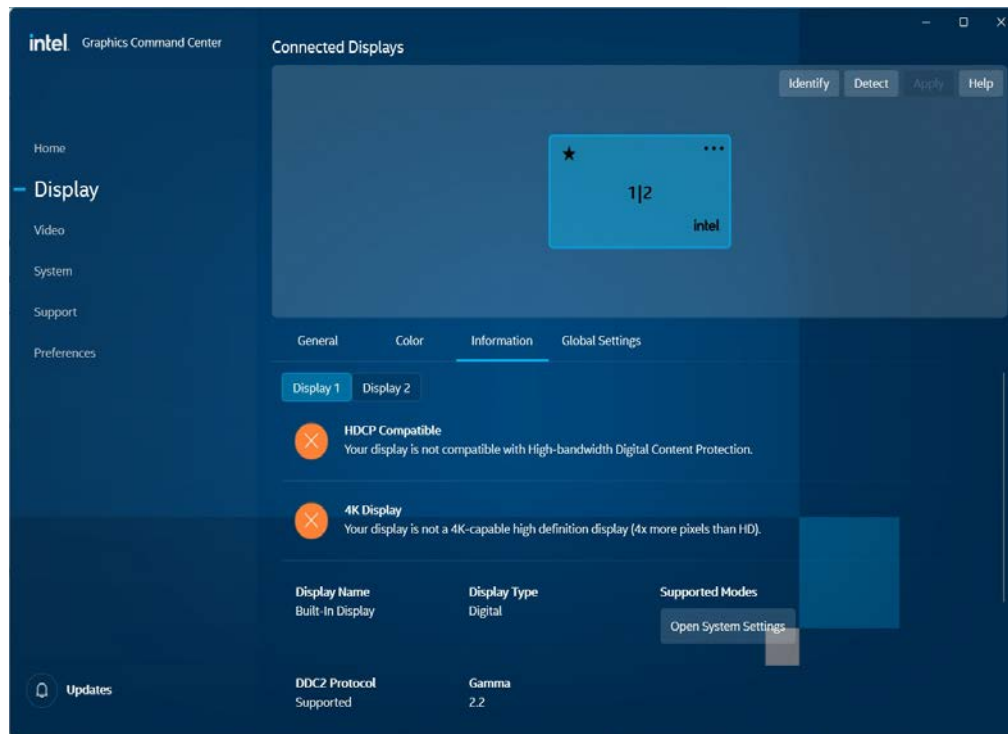


Figure B - 10
Intel® Graphics
Command Center
(Display - Color
Screen)

Information

Information provides details on any attached displays.

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



Global Settings

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

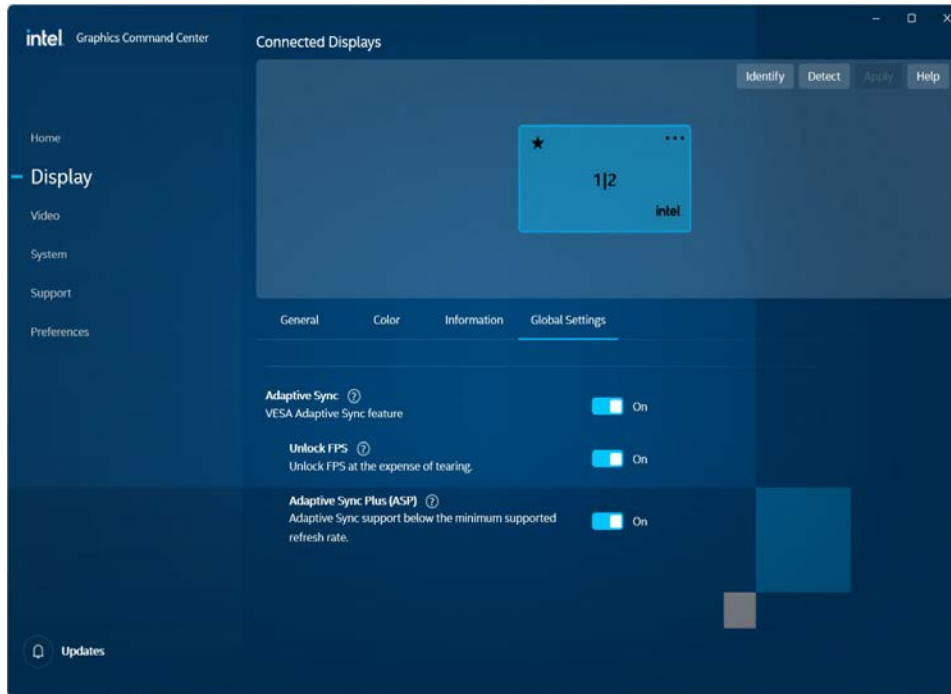


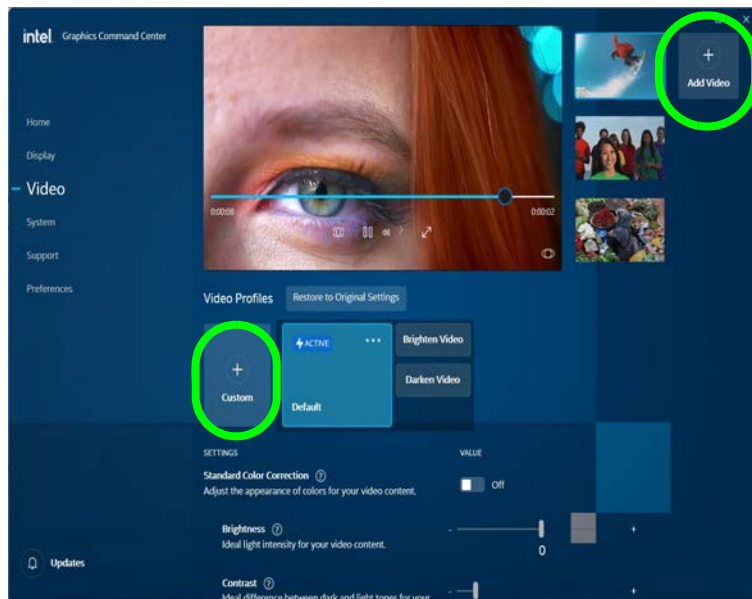
Figure B - 12
**Intel® Graphics
Command Center
(Display - Global
Settings)**

Video Driver Controls

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.

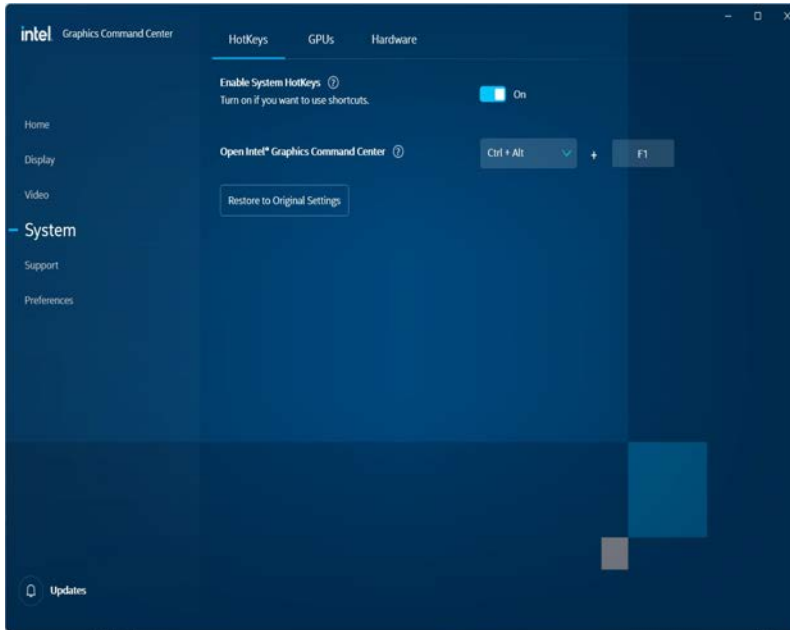
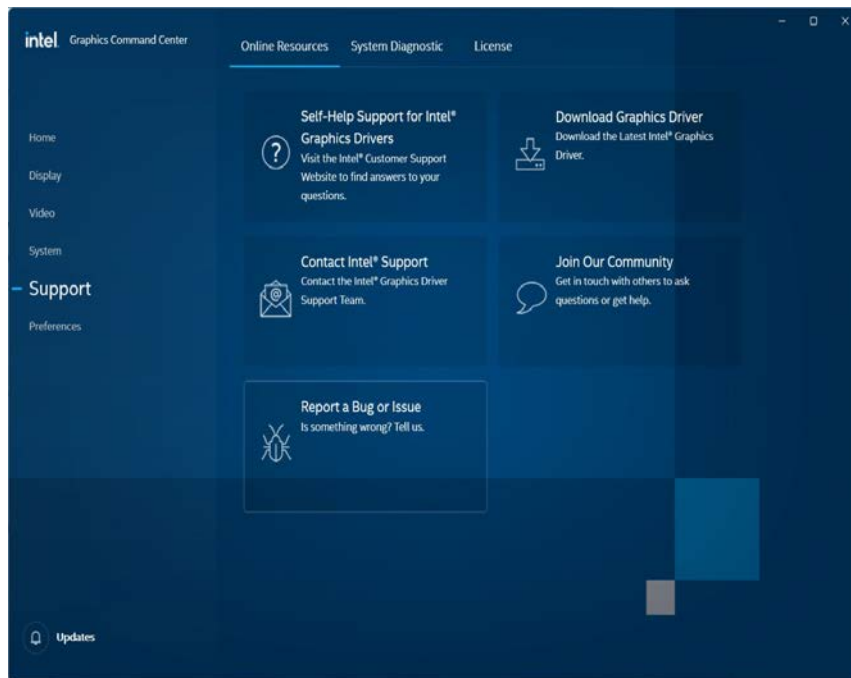


Figure B - 14
**Intel® Graphics
Command Center
(System - Hotkeys)**

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)



Preferences

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

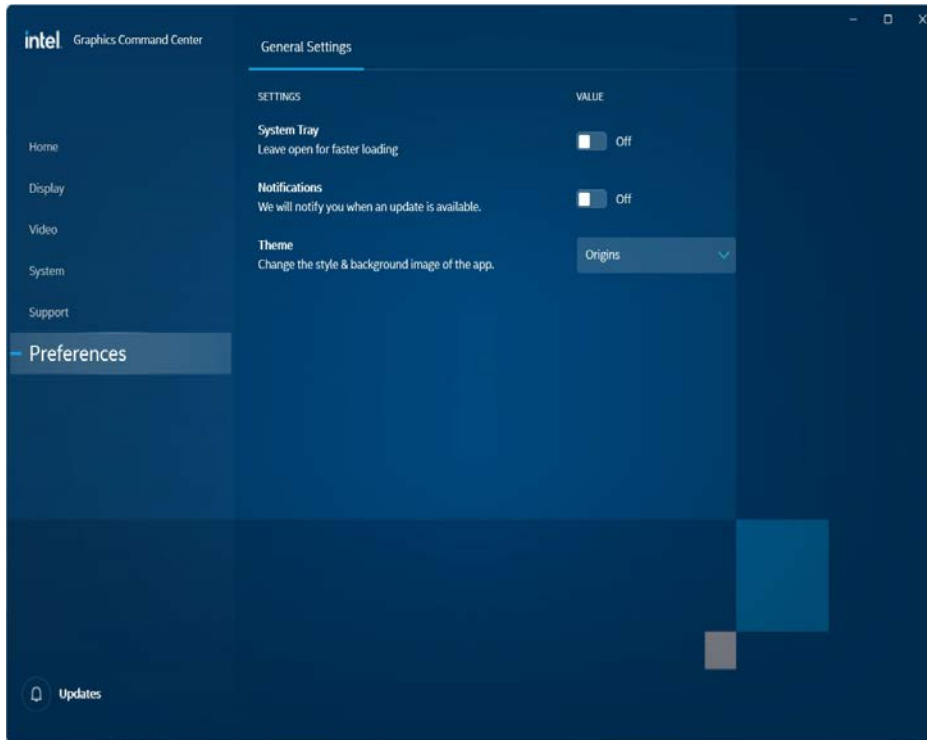


Figure B - 16
**Intel® Graphics
Command Center
(Preferences)**



4K2K Videos on 4K2K External Displays

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

Table B - 1
Display Modes

Display Devices & Options

You can use external displays connected to the HDMI-Out port, Display Port and 2 * Thunderbolt™ 4 Ports (a total of 4 displays. can be supported if the rear Thunderbolt™ 4 is not used to supply power).

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	Connected displays output the same view and may be configured independently.
Extend	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 displays to the appropriate ports, and turn them 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.

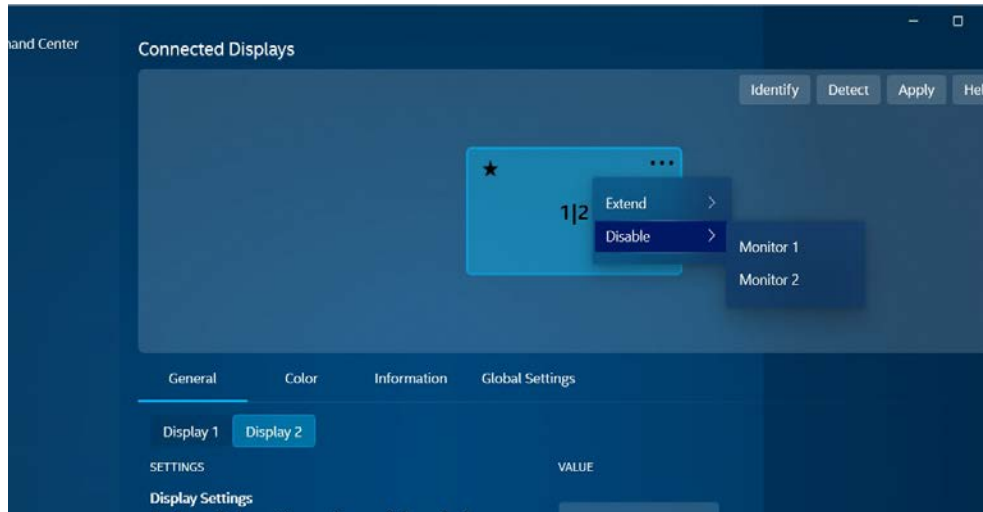


Figure B - 17
Display > Mirror

Video Driver Controls

To Enable Extend Mode:

1. Attach your external displays to the appropriate ports, and turn them 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.

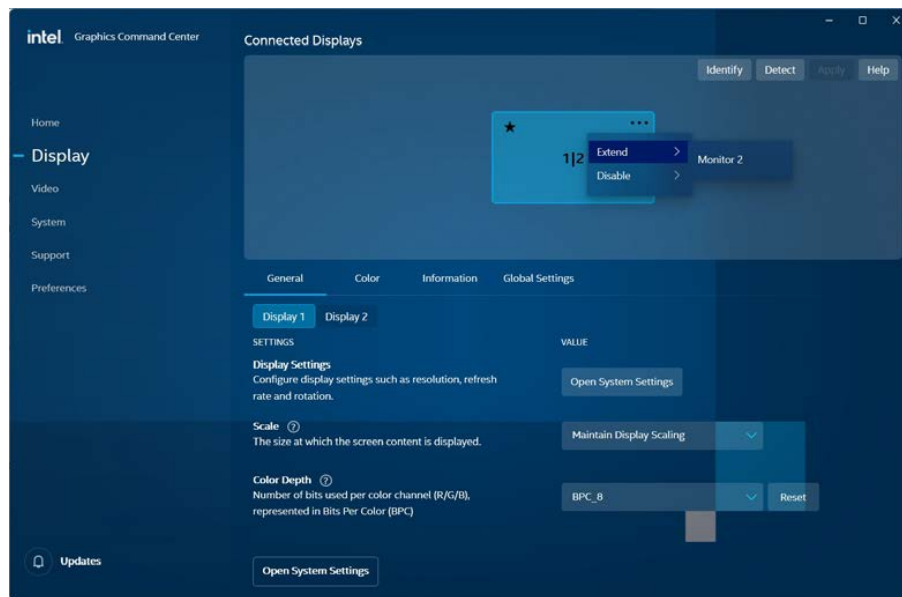


Figure B - 18
Display > Extend

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.

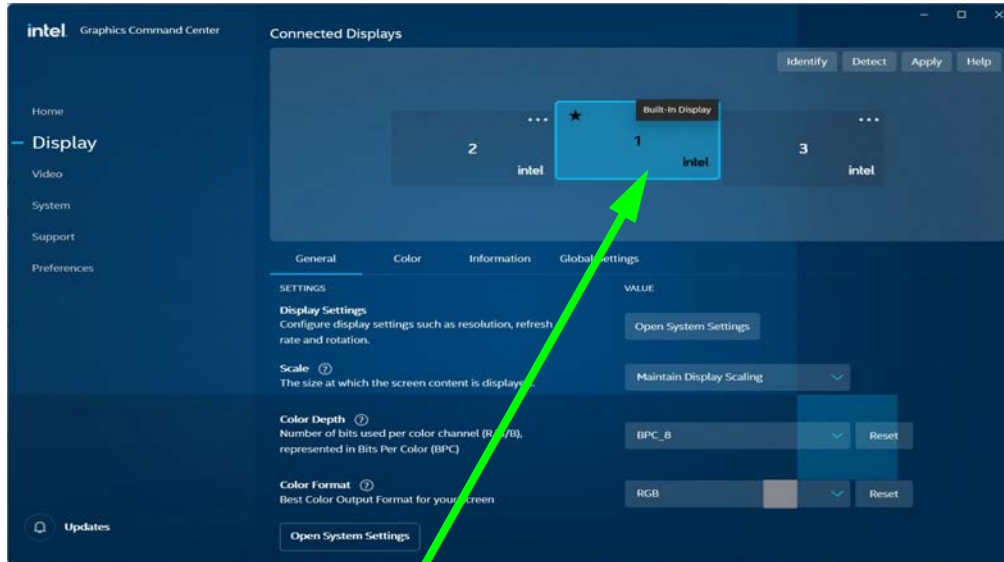


Figure B - 19
Display > Extend
(Drag Display)

B

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).

Appendix C: VESA Mount

Overview

This Chapter provides instructions on how to install the **optional** VESA Mount.

VESA Mount

If you have included the optional VESA (Video Electronic Standards Association) mount bracket in your purchase configuration, follow these instructions to mount the Mini PC behind a compatible external display. Check your display manufacturer's documentation or, online information, to confirm the display is VESA compatible.

The VESA mount standard defines the dimensions of the four-hole attachment on the rear of displays, and the screws used, and this mount supplied is engineered in compliance with this standard. There are two sets of holes at the mount's rear, allowing for compatibility with a range of displays.

Supplied with the VESA mount bracket is:

- 1 * VESA Mount Bracket Unit (Supports 75 x 75mm & 100 x 100 mm VESA Standard)
- 4 * Type M4*L10 Screws (used to attach the bracket to the display)
- 3 * Type M3*L3 Screws (2 to attach to the Mini PC and 1 for the lock)

C



Screwdriver Use

Use only the screws provided with the unit, and only use a Type 2 Phillips head screwdriver to tighten the screws. Using a screwdriver which is too small, or too large, risks causing damage to the screws. If you are using an adjustable torque screwdriver then use a torque setting of 3 kgf-cm.

Follow these steps to install the mount:

1. Locate the four screw VESA-compatible holes on the rear of the display.
2. Orientate the VESA Mount bracket as illustrated below with the “UP” arrow clearly defined, and the readable side of the word “UP” facing outward, away from the display side.
3. There are 4 * M4*L10 type screws supplied with the mount bracket, do not use any other screw types.
4. Place the VESA mount bracket on the rear of the display and align it with the holes on the rear of the display.
5. There are 2 sets of holes on the bracket, an outer set, and an inner set, so align the set of holes that are compatible with your display.
6. Use a type 2 Phillips head screwdriver (if you are using an adjustable torque screwdriver then use a torque setting of 3 kgf-cm) to tighten the 4 * M4*L10 screws to firmly affix the bracket to the display, and make sure the bracket is firmly secured.

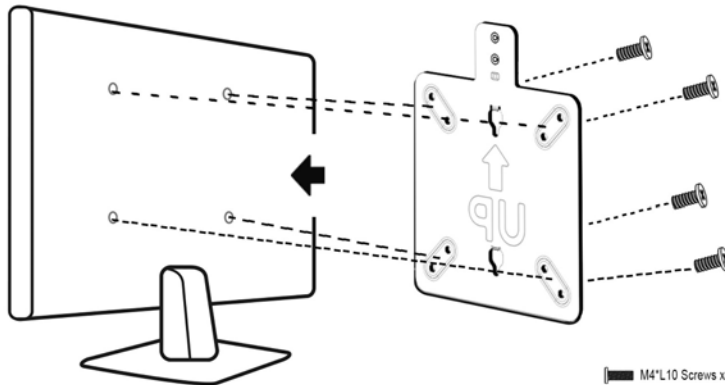


*Figure C - 1 - Bracket & M4*L10 Screws*



VESA Compatibility

Only attach the bracket to VESA compatible displays.

Only use the 4 * M4*L10 screws supplied with the bracket.

Supports 75 x 75mm & 100 x 100 mm VESA Standard.

VESA Mount

7. Use a type 2 Phillips head screwdriver (if you are using an adjustable torque screwdriver then use a torque setting of 3 kgf-cm) to screw in the 2 * M3*L3 screws to the holes on the bottom of the Mini PC (**use only the 2 * M3*L3 Screws provided**).
8. Move the lock up in the direction of arrow ① to unlock it.
9. Attach the Mini PC unit by aligning the screws with the holes on the rear of the VESA mount bracket and then slide the unit down to lock it in position.

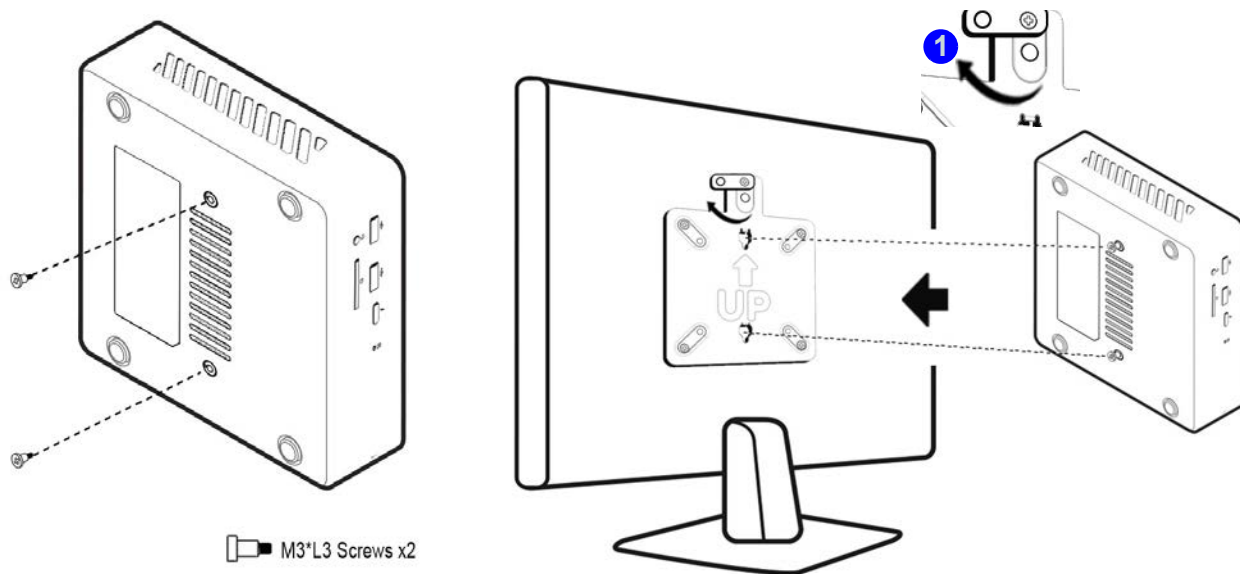


Figure C - 2 - 2 * M3*L3 Screws and Attaching Mini PC

10. Move the lock back in the direction of arrow **1** to lock it in position (it should firmly hold the Mini PC in position).
11. Use a type 2 Phillips head screwdriver (if you are using an adjustable torque screwdriver then use a torque setting of 3 kgf-cm) to screw in the M3 *L3 screw into the lock to secure it.

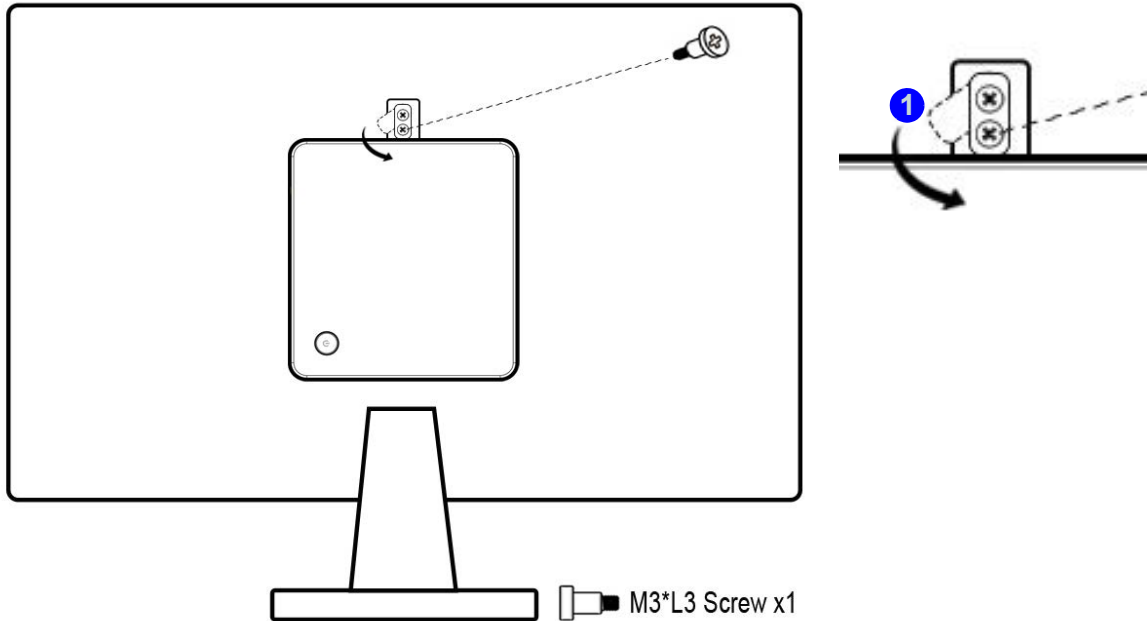


Figure C - 3 - Lock and Screw

VESA Mount

C

Appendix D: Specifications



Latest Specification Information

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

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

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

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

Specifications

Memory

Dual Channel **DDR5**
Memory Expandable up to **64GB**
Compatible with 8GB, 16GB or 32GB
Modules

Two 262 Pin SO-DIMM Sockets
Supporting **DDR5 5200 MHz** Memory
Modules (Real operating frequency
depends on processor and memory
modules).



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 2280 SSDs with PCIe Gen 4x4
Interface

One Changeable 2.5" 7mm (h) Hard Disk
Drive (HDD) / Solid State Drive (SSD)
with SATA Interface (**Factory Option for
some Model Designs only**)

Audio

High Definition Audio Interface

Interface

Front I/O Ports:

One Thunderbolt 4 Port (Type C)
Two USB 3.2 Gen 2 Ports (Type A)
One 2-in-1 Combo Audio Jack
(Headphone /Microphone Combo)
One 6-in-1 Card Reader MMC / RSMHC
/ SD / Mini SD / SDHC / SDXC

Rear I/O Ports:

*One Thunderbolt 4 Combo Port with
Power Delivery DC-In (Type C)
Two USB 3.2 Gen 2 Ports (Type A)
One HDMI-Out (High-Definition Multimedia
Interface) 2.1 Port (with HDCP)
One DisplayPort 1.4
Two RJ-45 LAN Jacks
One DC-In Jack

=====

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/1.5A.

***Note:** The Thunderbolt 4 Combo supports Power
Delivery with DC-In.

Ports supporting Power Delivery with DC-In 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.

=====

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 10/100/1000Mb Base-TX **Ethernet
LAN**

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

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)	Features (For Some Model Designs) W/HDD Design (for Some Model Designs) Supports a VESA Bracket to fit behind a display Top Side Power Button	Dimensions & Weight 140mm (w) * 130mm (d) * 43.9mm (h), 0.79L OR 140mm (w) * 130mm (d) * 53mm (h), 0.96L 0.65kg **Barbone System for Model A OR 0.72kg **Barbone System for Model B <i>**A barbone system is without the storage, RAM, adapter, power cord and factory option modules.</i>
Power & Battery	Operating System	
Full Range AC/DC Adapter - AC input 100 - 240V, 50 - 60Hz, DC Output 19V, 3.24A (65 Watts) Type C AC/DC Adapter (Factory Option) - AC input 100 - 240V, 50 - 60Hz, DC Output 20V, 3.25A (65 Watts)	Windows® 11 23H2 (64-bit)	
Security	BIOS	
Security (Kensington® Type) Lock Slot BIOS Password Intel® PTT for Systems Without TPM	One 256Mb SPI Flash ROM Insyde BIOS	
Power Management	Indicators	
Supports Wake on LAN Supports Wake on USB Supports Wake on RTC Alarm (AC Mode Only) Windows Modern Standby	Power/Suspend, System Activity	
	Environmental Spec Temperature Operating: 5°C - 35°C Non-Operating: -20°C - 60°C Relative Humidity Operating: 20% - 80% Non-Operating: 10% - 90%	

Specifications

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