

User Manual



MUSTANG W640SR NOTEBOOK

Notice

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

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

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

©October 2018

Trademarks

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



Preface

R&TTE Directive

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

ErP Off Mode Power Consumption Statement:

The figures below note the power consumption of this computer in compliance with European Commission (EC) regulations on power consumption in off mode:

- Off Mode < 0.5W

CE Marking

This device has been tested to and conforms to the regulatory requirements of the European Union and has attained CE Marking. The CE Mark is a conformity marking consisting of the letters “CE”. The CE Mark applies to products regulated by certain European health, safety and environmental protection legislation. The CE Mark is obligatory for products it applies to: the manufacturer affixes the marking in order to be allowed to sell his product in the European market.

This product conforms to the essential requirements of the R&TTE directive 1999/5/EC in order to attain CE Marking. A notified body has determined that this device has properly demonstrated that the requirements of the directive have been met and has issued a favorable certificate of expert opinion. As such the device will bear the notified body number 0560 after the CE mark.

The CE Marking is not a quality mark. Foremost, it refers to the safety rather than to the quality of a product. Secondly, CE Marking is mandatory for the product it applies to, whereas most quality markings are voluntary.

FCC Statement (Federal Communications Commission)

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

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

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

Operation is subject to the following two conditions:

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

FCC RF Radiation Exposure Statement:

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



Warning

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

IMPORTANT SAFETY INSTRUCTIONS

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

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
 2. Avoid using this equipment with a telephone line (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
 3. Do not use the telephone to report a gas leak in the vicinity of the leak.
 4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
 5. This product is intended to be supplied by a Listed Power Unit according to the model's requirements:
- Full Range AC/DC Adapter - AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19V, 3.42A (**65 Watts**) minimum AC/DC Adapter.

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

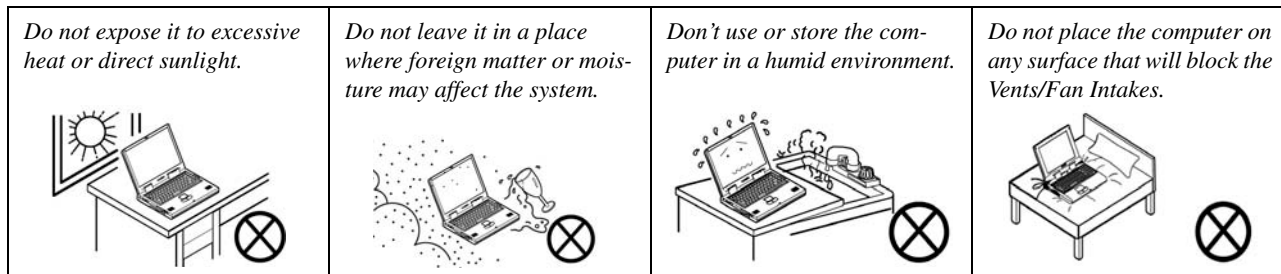
Instructions for Care and Operation

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

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

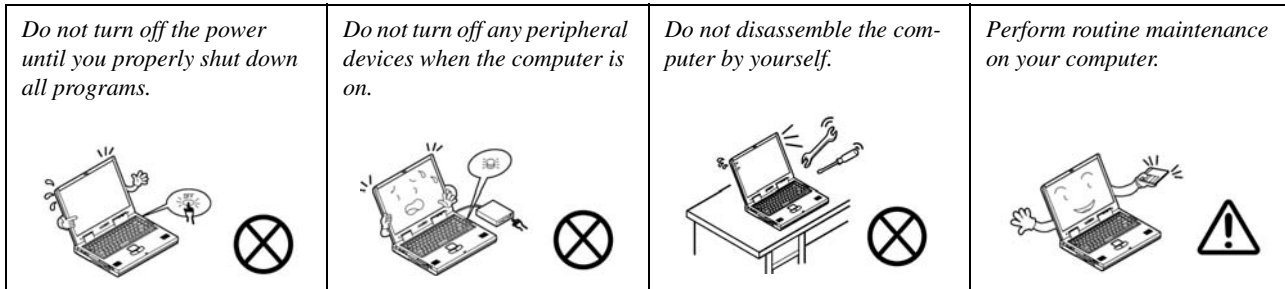


2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

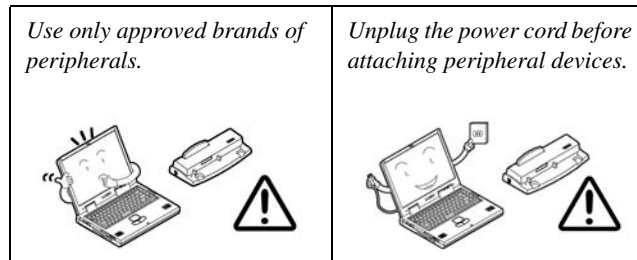


Preface

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



- Take care when using peripheral devices.**



Servicing

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

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



Bottom Cover Removal Warning

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.

Removal Warning (For Service Personnel)

When removing any cover(s) and screw(s) for the purposes of device upgrade, remember to replace the cover(s) and screw(s) before restoring power to the system.

Also note the following when the cover is removed:

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

Power Safety

The computer has specific power requirements:



Power Safety Warning (For Service Personnel)

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

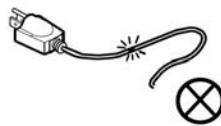
You must also remove your battery in order to prevent accidentally turning the machine on. **Before removing the battery disconnect the AC/DC adapter from the computer.**

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

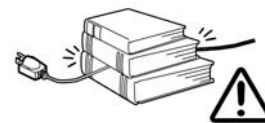
Do not plug in the power cord if you are wet.



Do not use the power cord if it is broken.



Do not place heavy objects on the power cord.



Polymer/Lithium-Ion Battery Precautions

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

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

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

General Battery Precautions

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



Battery Disposal & Caution

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

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

Cleaning

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

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

Cleaning Instructions

(For Computer Models Supplied with Light Blue Cleaning Cloth)

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

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

Travel Considerations

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

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



Power Off Before Traveling

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

On the Road

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

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

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

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

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

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

Developing Good Work Habits

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



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

Remember to:

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



Lighting

Proper lighting and comfortable display viewing angle can reduce eye strain and muscle fatigue in your neck and shoulders.

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

LCD Screen Care

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

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

LCD Electro-Plated Logos

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

Contents

Notice	I
Trademarks	I
R&TTE Directive	II
ErP Off Mode Power Consumption Statement:	II
CE Marking	III
FCC Statement	IV
FCC RF Radiation Exposure Statement:	V
This Computer’s Optical Device is a Laser Class 1 Product	VI
Instructions for Care and Operation	VII
Servicing	IX
Power Safety	X
Polymer/Lithium-Ion Battery Precautions	XI
General Battery Precautions	XII
Cleaning	XIII
Cleaning Instructions	XIII
Travel Considerations	XIV
On the Road	XV
Developing Good Work Habits	XVI
Lighting	XVII
LCD Screen Care	XVII
LCD Electro-Plated Logos	XVII

Quick Start Guide

Overview	1-1
Advanced Users	1-2
Beginners and Not-So-Advanced Users	1-2
Warning Boxes	1-2
Not Included	1-3
System Startup	1-4
System Software	1-5
System Map: LCD Panel Open	1-6
LED Indicators	1-7
Keyboard	1-8
Illuminated LED Keyboard	1-9
Keyboard Shortcuts	1-10
Function/Hot Key Indicators	1-11
Control Center	1-12
System Map: Front & Docked Views	1-13
System Map: Left View	1-14
System Map: Right & Rear Views	1-16
System Map: Bottom View	1-18
3G/4G Module USIM Card Installation	1-19
Inserting the Battery	1-20
Docking Port	1-21

Windows 10 Start Menu1-22

Right-Clicking the Windows Logo In Start Menu1-23

Start Menu Apps & Tiles1-24

Windows 10 Control Panel1-26

Settings1-27

Windows 10 Taskbar1-28

Action Center1-29

Video Features1-30

Power Options1-34

Features & Components

Overview2-1

Hard Disk Drive/Solid State Drive2-2

Optical (CD/DVD) Device2-3

Loading Discs2-3

Handling CDs or DVDs2-4

DVD Regional Codes2-5

Multi-In-1 Card Reader2-6

Smart Card Reader2-7

Touchpad and Buttons/Mouse2-8

Touchpad Sensitivity2-8

Mouse Properties Control Panel2-9

Preface

Mouse & Touchpad Devices	2-11
Realtek Audio Console	2-18
Realtek Audio Console - Main	2-19
Realtek Audio Console - Speakers	2-20
Realtek Audio Console - Microphone	2-21
Realtek Audio Console - Device Advanced Settings	2-22

Power Management

Overview	3-1
The Power Sources	3-2
AC/DC Adapter	3-2
Battery	3-2
Turning On the Computer	3-3
Shutting the Computer Down	3-4
Power Plans	3-5
Power-Saving States	3-7
Sleep	3-7
Hibernate	3-8
Shut down	3-8
Configuring the Power Buttons	3-9
Resuming Operation	3-11
Settings Menu Power Controls	3-13

Battery Information3-16

Battery Power3-16

Power Slider Settings3-17

Conserving Battery Power3-18

Battery Life3-19

New Battery3-19

Recharging the Battery with the AC/DC Adapter3-19

Proper handling of the Battery Pack3-20

Battery FAQ3-21

Removing the Battery3-24

Inserting the Battery3-25

Drivers & Utilities

What to Install4-1

Module Driver Installation4-1

Driver Installation4-2

Updating/Reinstalling Individual Drivers4-5

User Account Control4-6

Windows Security Message4-6

New Hardware Found4-6

Driver Installation Procedure4-7

Chipset4-7

Preface

Video (VGA)	4-7
LAN	4-7
CardReader	4-7
Touchpad	4-7
Intel® HID Filter Driver	4-7
Control Center	4-7
MEI Driver	4-8
Audio	4-8
Optional Drivers	4-10

BIOS Utilities

Overview	5-1
The Insyde BIOS Utility	5-2
UEFI Boot	5-3
Insyde BIOS Start Screen	5-4
Insyde BIOS Start Screen Options:	5-5
Boot Manager	5-6
Boot From File / File Explorer	5-7
Administer Secure Boot	5-8
Setup Utility - Main Menu	5-10
Setup Utility - Advanced Menu	5-12
Setup Utility - Security Menu	5-17

Setup Utility - Boot Menu5-20
 Setup Utility - Exit Menu5-22

Modules & Options

Overview6-1
 Setting Up SATA Mode (Optane™ or AHCI)6-3
 AHCI Mode6-3
 Intel® Optane™6-3
 Intel® Rapid Storage Technology Application6-3
 Intel® Optane™ Setup Procedure6-4
 Wireless LAN Module6-9
 Intel® WLAN Driver Installation6-9
 WLAN Configuration in Windows6-10
 Fingerprint Reader Module6-13
 Fingerprint Reader Driver Installation6-14
 Fingerprint Module Configuration6-15
 Bluetooth Combo Module6-17
 Intel Bluetooth Combo Driver Installation6-18
 Bluetooth Configuration in Windows6-19
 To Make your Computer Discoverable to Bluetooth Devices6-22
 Thunderbolt Port Driver6-23
 Intel® Software Guard Extensions6-25

Preface

Intel SGX Driver Installation	6-25
Intel® Speed Shift Technology Driver	6-26
Speed Shift Technology Driver Installation	6-26
Intel® Rapid Storage Technology	6-27
IRST Driver Installation	6-27
Intel® Rapid Storage Technology for Optane Systems	6-28
Enabling Intel® Optane™	6-29
Disabling Intel® Optane™	6-33
Intel® vPro™ Technology	6-37
Accessing the Intel Management Engine	6-37
PC Camera Module	6-40
Camera App	6-41
Taking Pictures/Capturing Video	6-44
Trusted Platform Module	6-46
Enabling & Activating TPM	6-47
TPM Management in Windows	6-48
TPM Actions	6-50
3G/4G Module	6-52
4G Configuration	6-55

Troubleshooting

Overview	7-1
----------------	-----

Basic Hints and Tips7-2
 Backup and General Maintenance7-3
 Viruses7-4
 Upgrading and Adding New Hardware/Software7-5
 Problems and Possible Solutions7-7

Interface (Ports & Jacks)

OverviewA-1
 Notebook Ports and JacksA-2

Control Center

OverviewB-1

Video Driver Controls

Video Driver InstallationC-1
 Dynamic Video Memory TechnologyC-1
 Configure Other Displays Using ProjectC-2
 You can configure attached displays from Project.C-2
 Configuring an External Display In WindowsC-3
 HDMI Audio ConfigurationC-4
 Wireless Display ConfigurationC-7
 Intel® HD/UHD Graphics Control PanelC-9
 Display Devices & OptionsC-20

Preface

Attaching Other Displays	C-21
--------------------------------	------

Specifications

Core Logic	D-2
Display	D-2
Memory	D-2
Storage	D-2
Audio	D-2
Keyboard & Pointing Device	D-2
Interface	D-2
Card Reader	D-2
Slot	D-3
Communication	D-3
Power	D-3
Security	D-3
Design Features	D-3
Operating System	D-3
BIOS	D-3
Power Management	D-3
Indicators	D-4
Environmental Spec	D-4
Dimensions & Weight	D-4

Docking Station Guide

Overview	E-1
Compatibility	E-1
Computer and Docking Station	E-2
Docked System Power	E-2
System Map: Front View	E-3
System Map: Rear View	E-4
Power Button LED & Lock Switch LED Indicator	E-5
System Map: Left & Right Views	E-6
Cold Docking the Computer to the Docking Station	E-7
Cold Undocking the Computer from the Docking Station	E-10
Hot Docking the Computer to the Docking Station	E-11
Hot Undocking the Computer from the Docking Station	E-14
Power Button Configuration	E-15
Docking Station Ports & Jacks	E-16
Multiple Displays	E-21
BIOS Controls - USB ports, Card Reader, Smart Card & ExpressCard	E-21
Backup Hotkey	E-22
Specifications	E-24
Storage	E-24
Interface and Ports	E-24
Buttons & Switches	E-24

Preface

Power	E-24
Security	E-24
LED Indicators	E-24
Environmental Spec	E-24
Dimensions & Weight	E-24


Chapter 1: Quick Start Guide

Overview

This Quick Start Guide is a brief introduction to the basic features of your computer, to navigating around the computer and to getting your system started. The remainder of the manual covers the following:

- **Chapter 2** A guide to using some of the main features of the computer e.g. the **storage devices (hard disk & card reader), Touchpad & Mouse and Audio.**
- **Chapter 3** The computer's **power** saving options.
- **Chapter 4** The installation of the **drivers** and utilities essential to the operation or improvement of some of the computer's subsystems.
- **Chapter 5** An outline of the computer's built-in software or **BIOS** (Basic Input Output System).
- **Chapter 6** A quick guide to the computer's **PC Camera, Wireless LAN, Fingerprint Reader, 4G, Bluetooth, Trusted Platform (TPM)** and **Intel** modules (some of which may be **optional** depending on your purchase configuration).
- **Chapter 7** A **troubleshooting** guide.
- **Appendix A** Definitions of the **interface, ports/jacks** which allow your computer to communicate with external devices.
- **Appendix B** Information on the **Control Center.**
- **Appendix C** Information on the **video driver controls.**
- **Appendix D** The computer's **specification.**
- **Appendix E** A guide to the **Docking Station.**

Advanced Users


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

Beginners and Not-So-Advanced Users




Notes

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

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

Warning Boxes

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

Not Included

Operating Systems (e.g. *Windows 10*) and applications (e.g. word processing, spreadsheet and database programs) have their own manuals, so please consult the appropriate manuals.



Drivers

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

Ports and Jacks

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

System Startup

1. Remove all packing materials, and place the computer on a stable surface.
2. Securely attach any peripherals you want to use with the notebook (e.g. keyboard and mouse) to their ports.
3. **When first setting up the computer use the following procedure (as to safeguard the computer during shipping, the battery will be locked to not power the system until first connected to the AC/DC adapter and initially set up as below):**
 - Attach the AC/DC adapter cord to the DC-In jack on the left of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter and **leave it there for 6 seconds or longer.**
 - Remove the adapter cord from the computer's DC-In jack, and then plug it back in again; the battery will now be unlocked.
4. Use one hand to raise the lid/LCD to a comfortable viewing angle (**do not exceed 180 degrees - or 130 degrees if the system is docked to the docking station or has a 9 cell battery inserted**); use the other hand to support the base of the computer (**Note: Never lift the computer by the lid/LCD**).

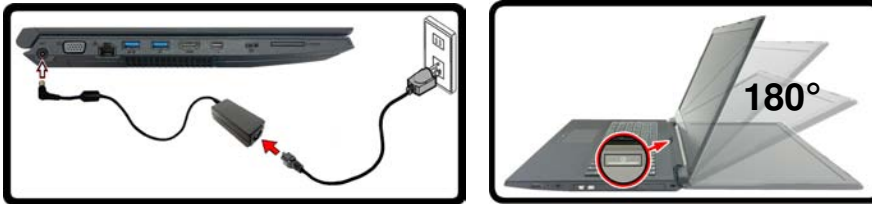


Figure 1 - 1
Opening the Lid/LCD



LCD Open Angle

The LCD may be opened to 180 degrees, however if the 9 cell battery is inserted, or the computer is docked to the docking station, the angle should not exceed 130 degrees.



Shutdown

Note that you should always shut your computer down by choosing the **Shut Down** command in **Windows** (see page [1 - 34](#)). This will help prevent hard disk or system problems.

System Software

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



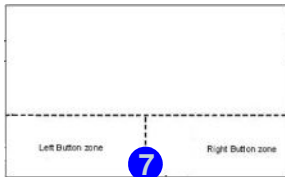
Windows OS

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

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

Figure 1 - 2
LCD Panel Open

1. Built-In PC Camera (Optional)
2. PC Camera LED
3. Built-In Array Microphone
4. LCD
5. Power Button
6. Keyboard
7. Touchpad & Buttons
8. Fingerprint Reader Sensor
9. LED Indicators



Note that the Touchpad and Buttons valid operational area is that indicated within the red dotted lines above.

System Map: LCD Panel Open



Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are OFF if you are using the computer aboard aircraft.

Use **Fn + F11 Airplane Mode** key combination to toggle Airplane Mode On/Off, and check the LED indicator for the power status (see [Table 1 - 1, on page 1 - 7](#)).



LED Indicators

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

Icon	Color	Description	Icon	Color	Description
	Orange	DC Power is Plugged In		White	Power Button
	Blinking Orange	The Powered USB Port is On* (System Off)		White	Hard Disk Activity
		The Camera is in Use (System On)		White	Airplane Mode is ON (the WLAN, Bluetooth & 3G/4G Modules are OFF)
	White	The Computer is On		White	Number Lock is Activated
	Blinking White	The Computer is in Sleep Mode		White	Caps Lock is Activated
	Orange	The Battery is Charging		White	Scroll Lock is Activated
	White	The Battery is Fully Charged			
	Blinking Orange	The Battery has Reached Critically Low Power Status			

*Note: The powered USB 3.0 port (see [Figure 1 - 7 on page 1 - 14](#)) may be toggled on /off by means of the **Fn + Power Button** key combination. When the powered USB port is on it will supply power (**for charging devices only, not for operating devices**) when the system is off but still powered by the AC/DC adapter plugged into a working outlet, or powered by the battery with a capacity level above 20% (this may not work with certain devices).

Table 1 - 1 - LED Indicators



Other Keyboards

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

NumLk & ScrLk

Hold down the **Fn Key** and either NumLk or ScrLk to enable number or scroll lock, and check the LED indicator for status.

Keyboard

The keyboard has an embedded numerical keypad for easy numeric data input, and features function keys to allow you to change operational features instantly. See *Table 1 - 3, on page 1 - 11* for full function key combination details.



Figure 1 - 3 - Keyboard




Special Characters


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



Windows Logo Keyboard Shortcut

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

Menu/Application Keyboard Shortcut

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

Keyboard Shortcuts

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


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

Table 1 - 2 - Keyboard Shortcuts

Function/Hot Key Indicators









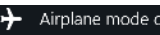
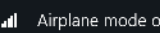












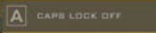








Keys	Function	Keys	Function
Fn + 	Play/Pause (in Audio/Video Programs)	Fn + 	PC Camera Power Toggle  
Fn + 	TouchPad Toggle  	Fn + 	Airplane Mode Toggle  
Fn + 	Turn LCD Backlight Off (Press a key to or use TouchPad to turn on)	Fn + 	Sleep Toggle
Fn + 	Mute Toggle	Fn + NumLk	Number Lock Toggle  
Fn + 	Backlight Keyboard Level Adjust (Illuminated Keyboard Designs Only) 	Fn + ScrLk	Scroll Lock Toggle  
Fn +  	Volume Decrease/Increase	Caps Lock	Caps Lock Toggle  
Fn + 	Display Switch Menu	Fn + 	Fan Control Toggle between Automatic Fan Control / Full Power  
Fn +  	Brightness Decrease/Increase	Fn + 	Control Center Toggle (see over)


Table 1 - 3 - Function Keys & Visual Indicators

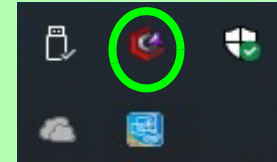
Control Center

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



Control Center Access

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




Close the Control Center by clicking the close icon  in the top right of the panel.

Figure 1 - 5 - Control Center

System Map: Front & Docked Views



Figure 1 - 6
**Front & Docked Views
(with Optional
Docking Station)**

1. LED Indicators
2. Docking Station (Optional)



Docking Port Cover

Make sure you keep the docking cover closed when the computer is not docked in the station. This will help prevent foreign objects and/or dust getting in to the contact area,

If the docking station is included in your purchase configuration, make sure you open the cover of the docking port before connecting the computer to the station, as failure to do so may result in irreparable damage to the connector on the docking station.



Docking

If your purchase includes the docking station, open the docking port cover latch and align the computer with the placeholder on the docking station (see the accompanying docking station for full details of the docking procedure).

Figure 1 - 7
Left View

System Map: Left View



1. DC-In Jack
2. External Monitor Port
3. RJ-45 LAN Jack
4. 1 * Type-A Powered USB 3.0 Port (USB 3.1 Gen 1)
5. 1 * Type-A USB 3.0 Port (USB 3.1 Gen 1)
6. HDMI Out Port
7. Mini DisplayPort 1.2
8. 1 Type-C USB 3.1 Gen 2 Port (USB 3.1 Gen 2)
- OR**
(Factory Option)
1 * USB 3.1 Gen 2 (Type C) Thunderbolt™ 3 Combo Port (* See notes overleaf)
9. Multi-In-1 Card Reader



Multi-In-1 Push-Push Card Reader

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

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

Powered USB 3.0 Port

The powered USB 3.0 port **4** can supply power (for charging devices only, not for operating devices) when the system is off but still powered by the AC/DC adapter plugged into a working outlet, or powered by the battery with a capacity level above 20% (this may not work with certain devices). Toggle power to this port by using Fn + power button. Power to this port may be enabled/disabled in the BIOS.



External Monitor Port & RJ-45 LAN Jack

If you are using a VGA cable plugged into the external monitor port, and a network cable connected to the RJ-45 LAN jack, it is recommended that you insert the VGA cable before inserting the LAN cable.



Thunderbolt Port Devices

If your purchase option includes a Thunderbolt port note the following:

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

Ejecting Thunderbolt Devices

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

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

Thunderbolt Port Security Level

The security level (including setting the port for display devices) for the Thunderbolt port can be set up in the BIOS (see "**Security Level (Advanced Menu > Thunderbolt Configuration)**" on page 5 - 16).

Thunderbolt™ Port Set for Display

If your purchase configuration includes the Thunderbolt™ combo port then the display configuration for the Thunderbolt™ port and Mini Display Port can be set up in the BIOS (see "**DDI Control (Advanced Menu > Advanced Chipset Control)**" on page 5 - 14). If the Thunderbolt™ port is enabled for display then the Mini Display Port #1 **7** (Figure 1 - 7 on page 1 - 14) will be turned off.

Quick Start Guide

Figure 1 - 8

Right & Rear Views

1. 1 * USB 2.0 Port
2. Microphone-In Jack
3. 2-in-1 Audio Jack (Headphone Out/ S/PDIF Out Jack)
4. Optical Device Drive Bay (for DVD Device)
5. Security Lock Slot
6. Smart Card Reader
7. Battery

System Map: Right & Rear Views



Battery Information

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



USB 3.0 Port OR USB 2.0 Port

This model includes 1 * USB 2.0 port (Type-A), 2 * USB 3.0 (USB 3.1 Gen 1 port) Type-A ports and 1 * USB 3.0 (USB 3.1 Gen 2 port) Type-C port.

The USB ports and Smart Card Reader can be enabled/disabled in the BIOS (see page 5 - 10).



Ejecting USB Devices

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

1 - 16 System Map: Right & Rear Views



Disk Eject Warning

Don't try to eject a CD/DVD while the system is accessing it. This may cause the system to "crash". Stop the disk first then eject it, or press the stop button twice.

CD/DVD Emergency Eject

If you need to manually eject a CD/DVD (e.g. due to an unexpected power interruption) you may push the end of a straightened paper clip into the emergency eject hole. Do not use a sharpened pencil or any object that may break and become lodged in the hole. Don't try to remove a floppy disk/CD/DVD while the system is accessing it. This may cause the system to "crash".



Changing DVD Regional Codes

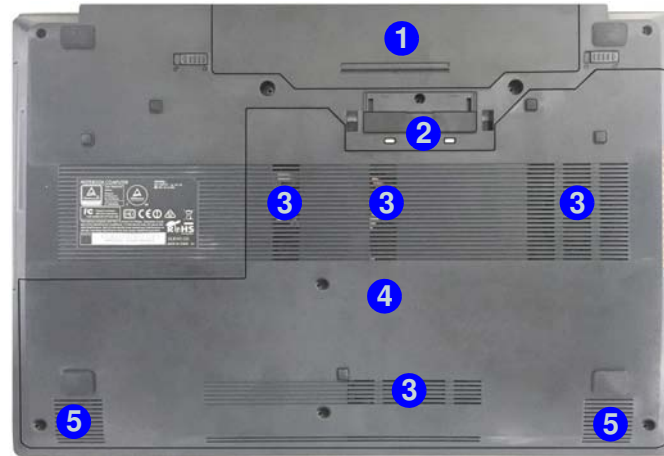
Go to the Control Panel and double-click Device Manager (Hardware and Sound), then click the + next to DVD/CD-ROM drives. Double-click on the DVD-ROM device to bring up the Properties dialog box, and select the DVD Region (tab) to bring up the control panel to allow you to adjust the regional code).

DVD region detection is device dependent, not OS-dependent. You can select your module's region code 5 times. The fifth selection is permanent. This cannot be altered even if you change your operating system or you use the module in another computer (see ***"DVD Regional Codes" on page 2 - 5***).

Figure 1 - 9
Bottom View

1. Battery
2. Docking Port
3. Fan Intake/Vent
4. Component Bay Cover
5. Speakers

System Map: Bottom View



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.



CPU

The CPU is not a user serviceable part.

Overheating

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



Docking Port Cover

If your purchase option includes the docking station, make sure you keep the cover closed when the computer is not docked in the station. This will help prevent foreign objects and/or dust getting in to the contact area.

If your purchase option does not include the docking station, an insert will be provided to prevent accidentally opening the docking port. Do not attempt to open the cover or remove the insert in this case.

Battery Removal instructions/3G/4G Module Card Installation

Removing the battery is necessary in order to access the USIM card option. If you have included an optional 3G/4G module in your purchase option, follow the instructions below to install the USIM card (provided by your wireless carrier)

1. Turn **off** the computer, and turn it over and then remove the battery (slide latch **1** in the direction indicated below, then slide hold latch **2** in place and slide the battery out in the direction of arrow **3**).
2. Insert the USIM card **4** into the slot at the rear of the battery compartment, as illustrated below, until it clicks fully into position, and then replace the battery (see over).

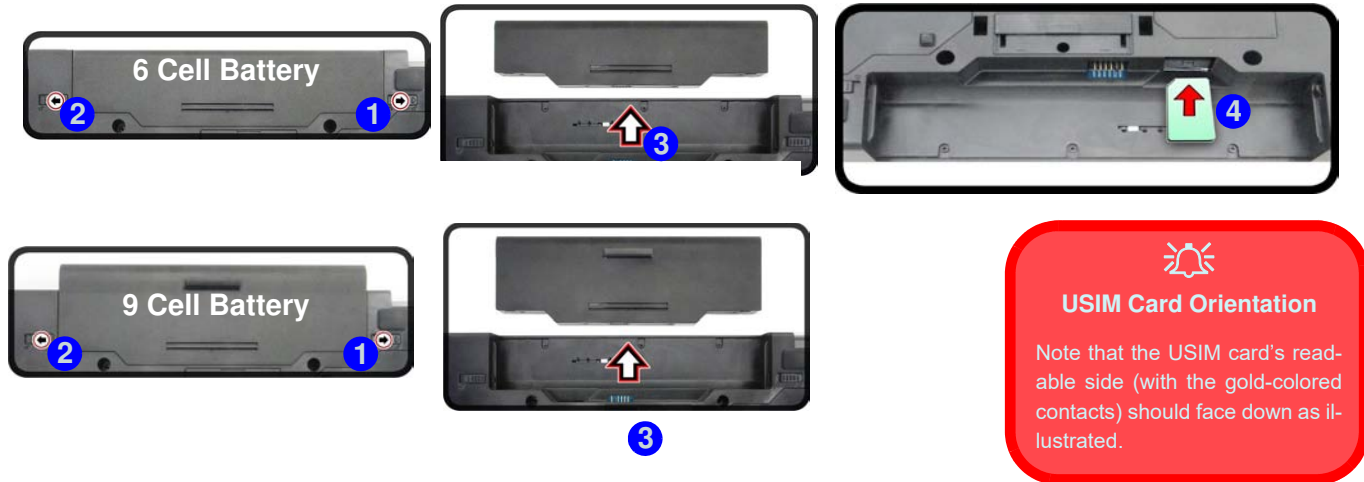


Figure 1 - 10 - Battery Removal & USIM Card Insertion

Inserting the Battery

1. Turn the computer **off**, and turn it over.
2. Slide the battery into the compartment in the direction of the arrow **1**.
3. Slide the latches **2** and **3** in the direction of the arrows to lock the battery.



Figure 1 - 11 - Battery Insertion

Replacement batteries are available from Ace Computers and can be found at the following website:

<http://www.acecomputers.com/documents/SPAREPARTSW640R.pdf>

Your system does not need to be in warranty in order to order spare batteries or other parts.

There is ONE battery in the product, but two sizes - a 6 cell or a 9 cell model.

1 - 20 Inserting the Battery

Docking Port

Follow the instructions below **before** connecting the computer to the docking station, if included in your purchase configuration. Failure to open the cover of the docking port before connecting the computer to the docking station may result in irreparable damage to the connector on the docking station.

1. Turn the computer over.
2. Slide the docking port cover latch in the direction of the arrow at point **1** to open the cover.
3. After disconnecting the computer from the docking station, slide the docking port cover latch in the direction of the arrow at point **2**.

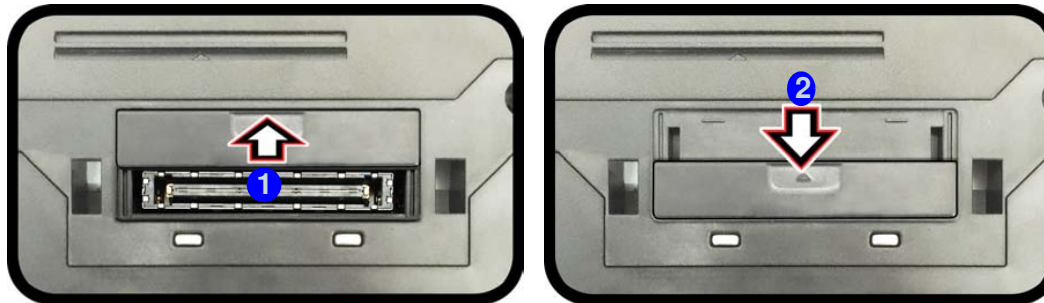




Figure 1 - 12 - Opening and Closing the Docking Port



Docking Port Cover

Make sure you keep the cover closed when the computer is not docked in the station. This will help prevent foreign objects and/or dust getting in to the contact area.

Windows 10 Start Menu

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

Windows Screens

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

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

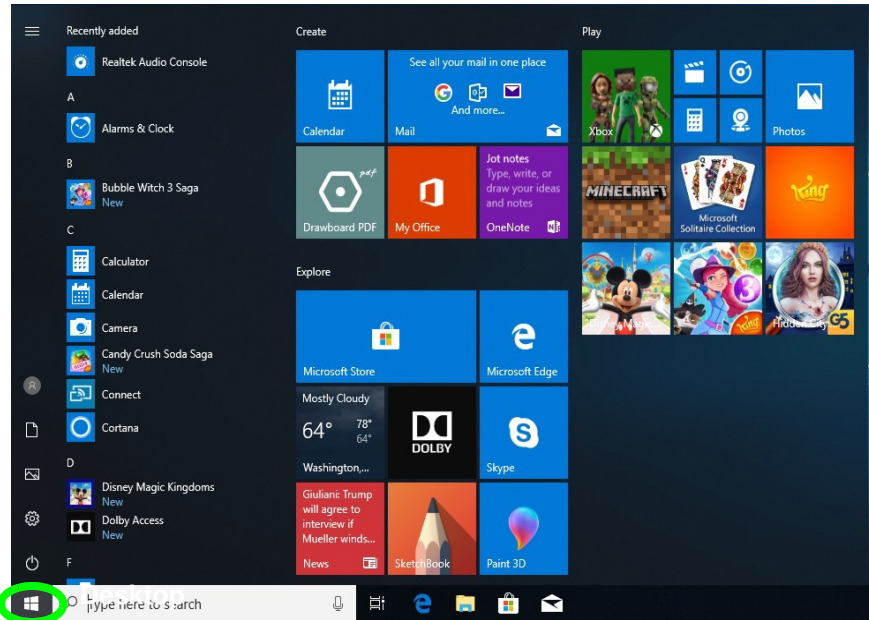




Figure 1 - 13 - Windows Start Menu

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.

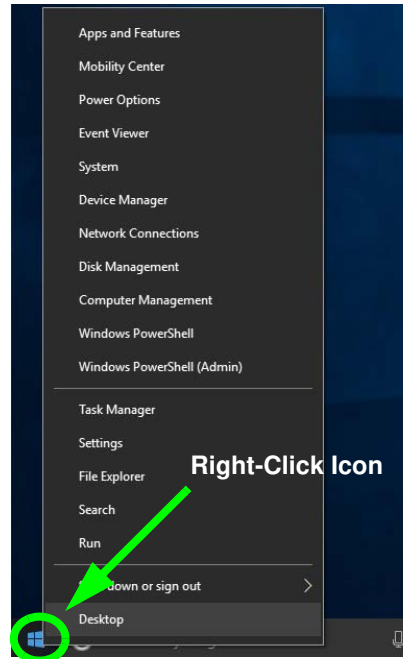


Figure 1 - 14 - Right-Click Windows Logo in Start Menu

Quick Start Guide

Start Menu Apps & Tiles

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

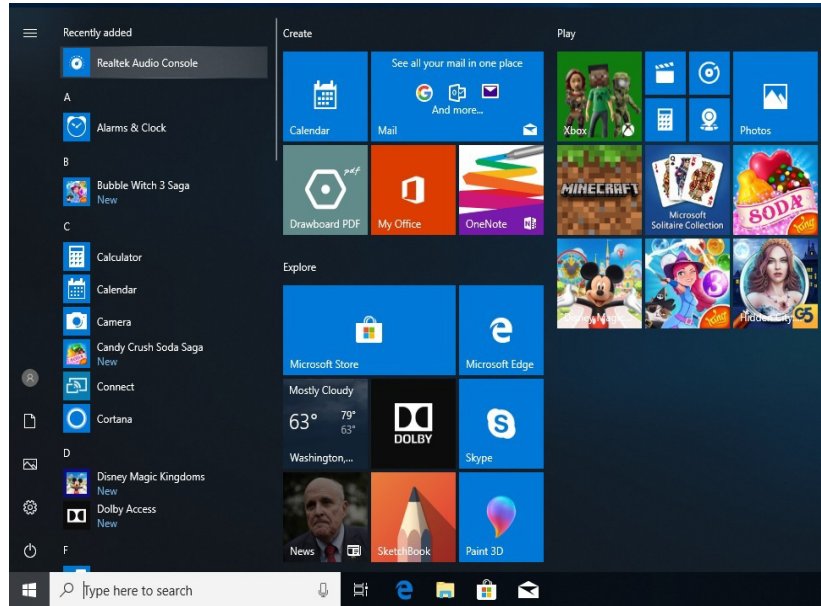


Figure 1 - 15 - Expanding the Start Menu

1 - 24 Windows 10 Start Menu

Mustang W640R Notebook

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

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

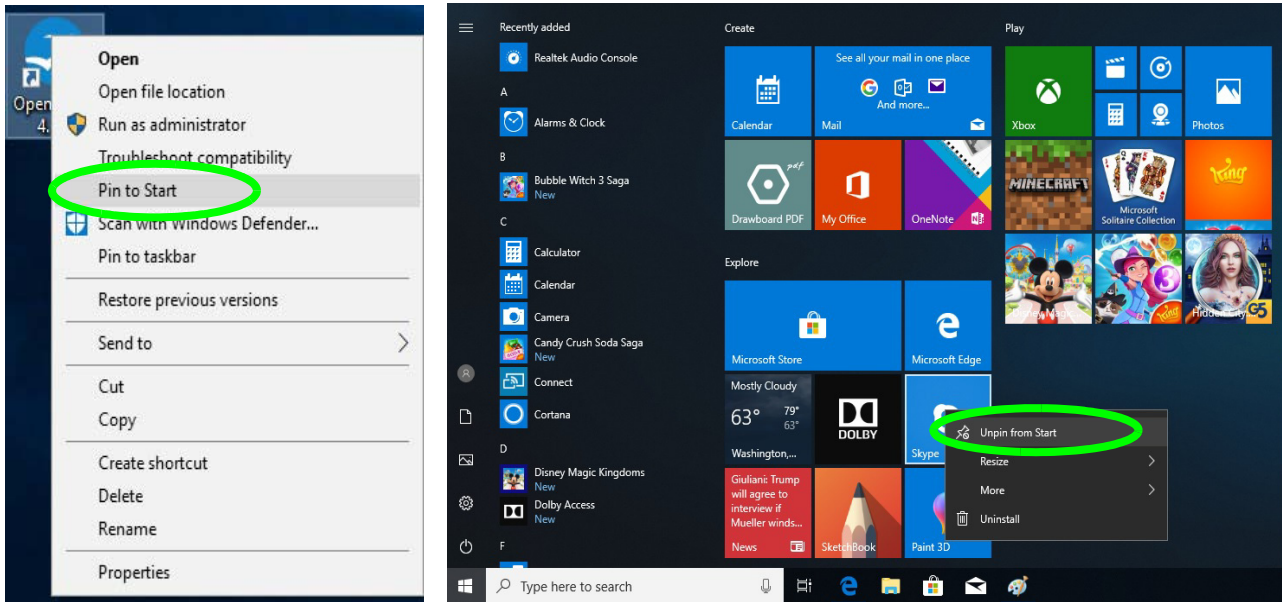


Figure 1 - 16 - Pin to Start/Unpin from Start

Windows 10 Control Panel

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

- Select *Control Panel* under the **Windows System** item in the **Start Menu**.
- Type *Control Panel* into the *Search* box in the taskbar and click on the icon when it pops up.
- You can pin the *Control Panel* tile to *Start* or *taskbar*.

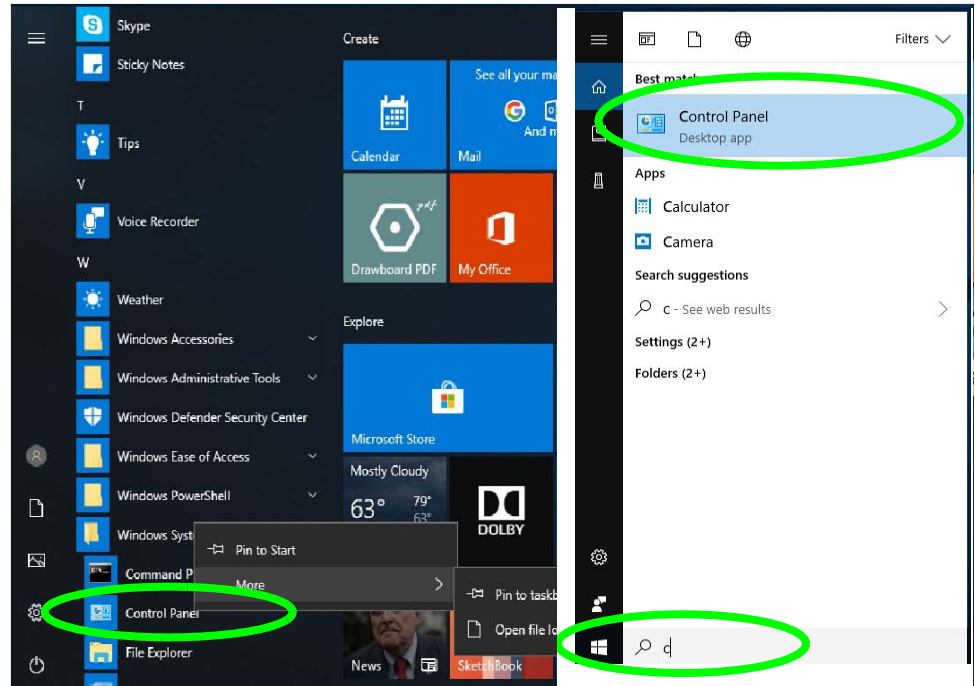


Figure 1 - 17 - Windows 10 Control Panel Access

Settings

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

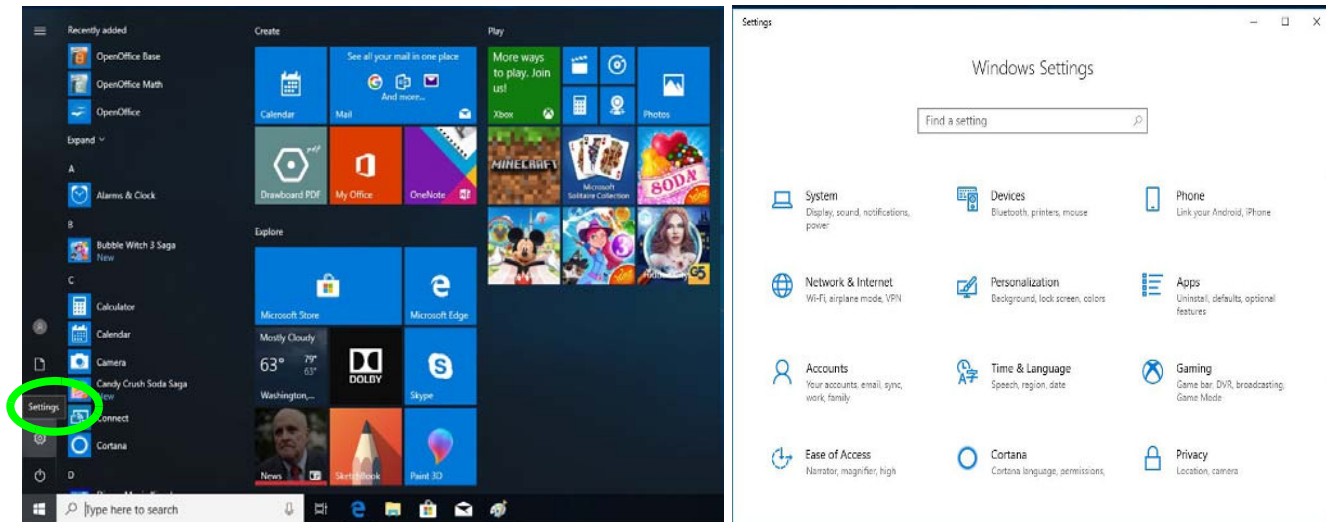


Figure 1 - 18 - Settings

Windows 10 Taskbar

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

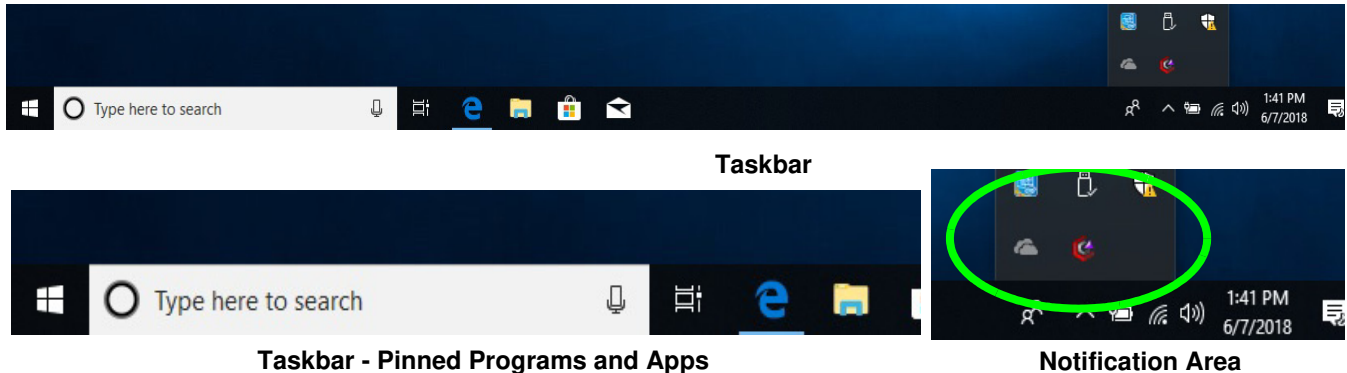


Figure 1 - 19 - Taskbar

You can pin/unpin apps to/from the taskbar in much the same way as you can to the Start screen (see *[“Pining/Unpinning Apps & Programs to/from the Start Menu”](#)* on page 1 - 25).

Action Center

The **Action Center** appears as a vertical panel on the right side of the screen when you swipe in from the right or click the button in the notification tray. This gives you access to commonly needed functions like Network, All Settings, Airplane Mode, and Project etc.

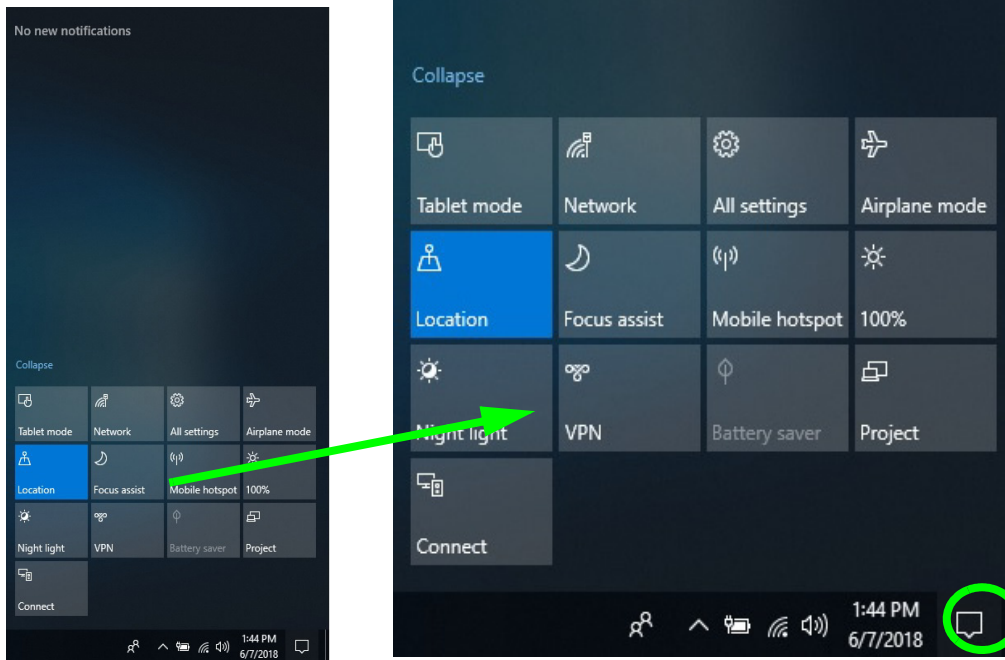




Figure 1 - 20 - Action Center

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. In *Windows 10* it is possible to quickly configure external displays from the **Project** menu (press the Windows logo key  on your keyboard and the **P** key or **Fn + F7**).

To Configure Displays using Project

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

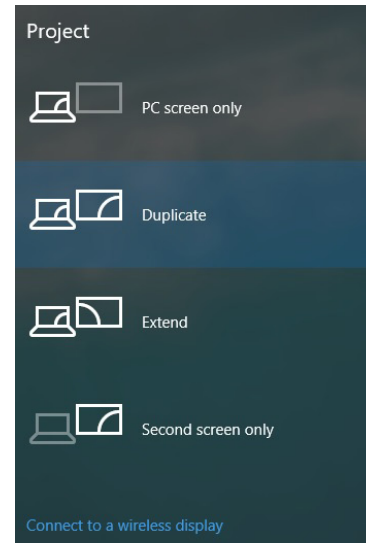


Figure 1 - 21 - Project (Devices)

To access the **Display Settings**:

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

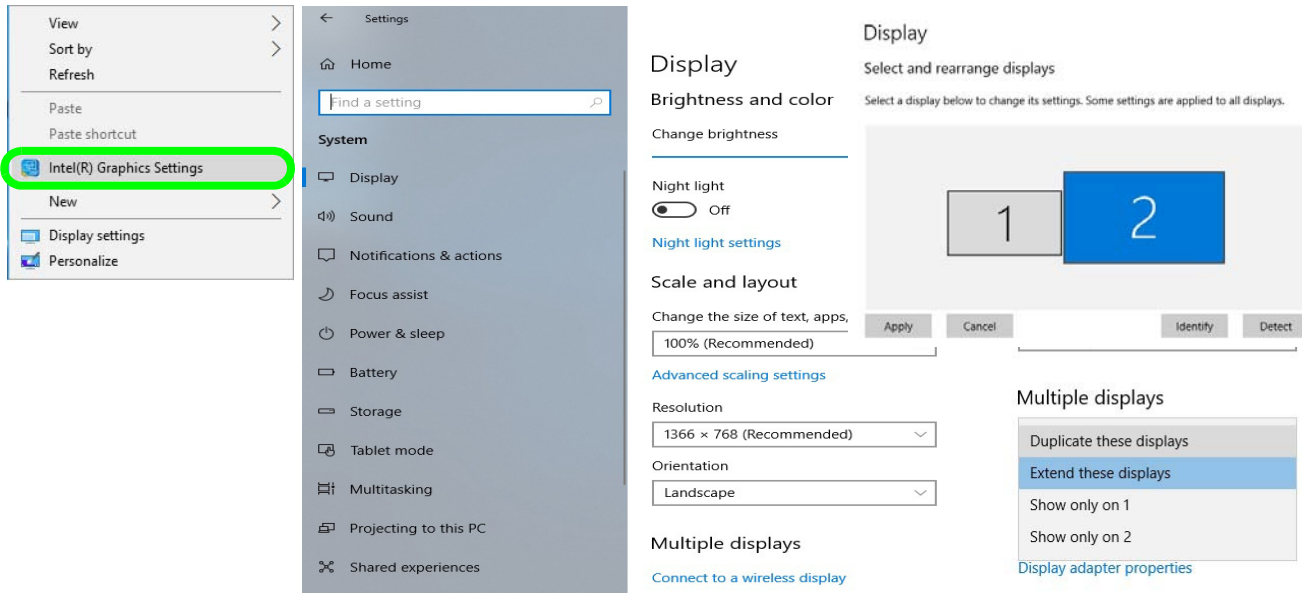



Figure 1 - 22 - Display Settings

Quick Start Guide

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

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

OR

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

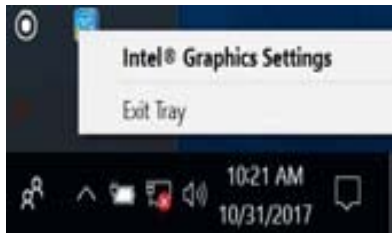
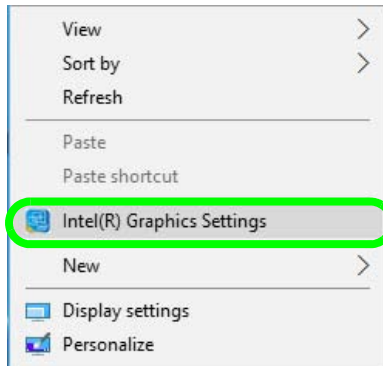


Figure 1 - 23 - Intel® HD/UHD Graphics Control Panel

1 - 32 Video Features

Minimum Screen Resolution Settings

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

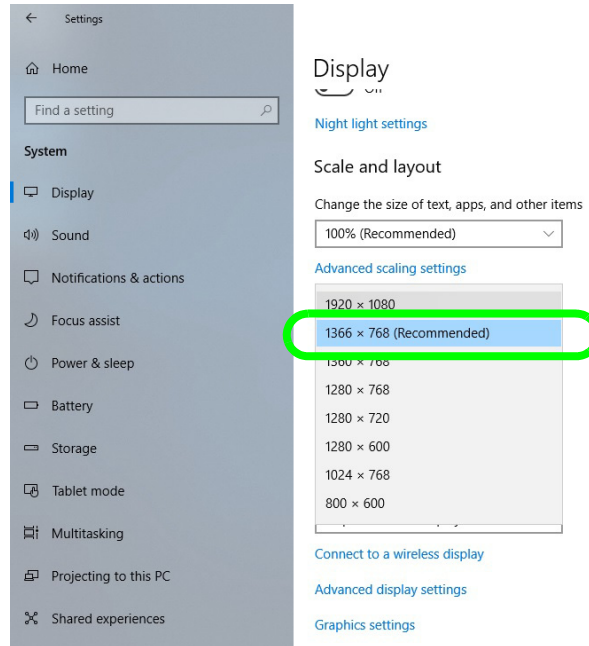


Figure 1 - 24 - Display (Resolution)

Power Options

Power Options (Hardware and Sound) can be accessed from the Control Panel. The **Power** button item in **Start Menu** (or the context menu) may be used to **Shut down** or **Restart** (you can also add **Hibernate/Sleep** to the menu - see page *1 - 35*). To fully control all the power options (including Hibernate mode) go to the **Power Options** control panel and configure the power button, sleep button and lid to perform the function selected.

Using the Power Button

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



Figure 1 - 25 - Shut Down/Restart

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

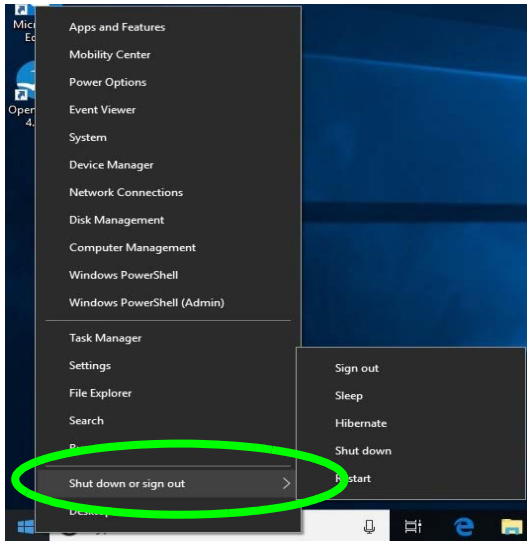



Figure 1 - 26 - Context Menu Shut Down or sign out

Ctrl + Alt + Delete Key Combination

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

Adding Hibernate/Sleep to the Power Men

1. Go to the **Power Options (Hardware and Sound)** control panel (or go to **Windows Settings > Power & sleep > Additional power settings**).
2. Click **Choose what the power buttons do**.
3. Click **“Change settings that are currently unavailable”**

4. Click to put a check in the **Hibernate/Sleep** box under **Shutdown settings**.
5. Click **Save Changes** and close the control panel.

Chapter 2: Features & Components

Overview

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

- Hard Disk Drive/Solid State Drive
- Optical (CD/DVD) Device
- Multi-In-1 Card Reader
- Smart Card Reader
- Touchpad and Buttons/Mouse
- Realtek Audio Console



External Optical (CD/DVD) Device Drives

To install applications and drivers etc. you will need to attach an external optical CD/DVD device to the USB ports.



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.

Hard Disk Drive/Solid State Drive

The hard disk drive (or Solid State Drive) is used to store your data in the computer. The hard disk can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5mm/7mm (see **“Storage” on page D - 2**). If you need to replace/remove the hard disk (or Solid State Drive) please contact your distributor/supplier for further information.

Figure 2 - 1

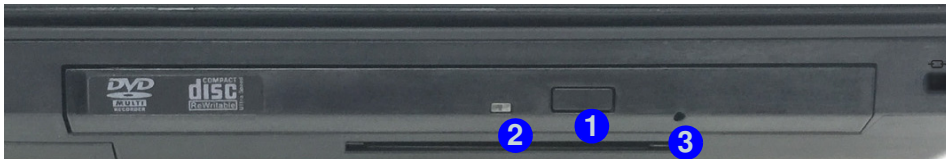
Hard Disk Location

Optical (CD/DVD) Device

There is a bay for a 5.25" optical (CD/DVD) device (12.7mm height). The actual device will depend on the module you purchased (see *“Storage” on page D - 2*). The optical device is usually labeled **“Drive D:”** and may be used as a boot device if properly set in the **BIOS** (see *“Boot Manager” on page 5 - 6*).

Loading Discs

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



Sound Volume Adjustment

How high the sound volume can be set depends on the setting of the volume control within **Windows**. Click the **Volume** icon on the taskbar to check the setting.

Figure 2 - 2
Optical Device



CD Emergency Eject

If you need to manually eject a CD (e.g. due to an unexpected power interruption) you may push the end of a straightened paper clip into the emergency eject hole. However please do NOT use a sharpened pencil or similar object that may break and become lodged in the hole.

Disk Eject Warning

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

Handling CDs or DVDs

Proper handling of your CDs/DVDs will prevent them from being damaged. Please follow the advice below to make sure that the data stored on your CDs/DVDs can be accessed.

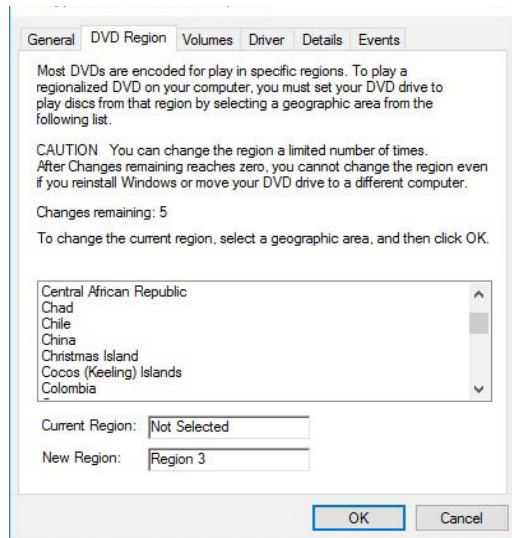
Note the following:

- Hold the CD or DVD by the edges; do not touch the surface of the disc.
- Use a clean, soft, dry cloth to remove dust or fingerprints.
- Do not write on the surface with a pen.
- Do not attach paper or other materials to the surface of the disc.
- Do not store or place the CD or DVD in high-temperature areas.
- Do not use benzene, thinner, or other cleaners to clean the CD or DVD.
- Do not bend the CD or DVD.
- Do not drop or subject the CD or DVD to shock.

DVD Regional Codes

To change the DVD regional codes:

1. Go to the **Control Panel**
2. Double-click **Device Manager (Hardware and Sound)**, then click the **+** next to **DVD/CD-ROM drives**.
3. Double-click on the DVD-ROM device to bring up the **Properties** dialog box, and select the **DVD Region** (tab) to bring up the control panel to allow you to adjust the regional code.



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



DVD Region Note

DVD region detection is device dependent, not OS-dependent. You can select your module's region code 5 times. The fifth selection is permanent. This cannot be altered even if you change your operating system or you use the module in another computer.

Figure 2 - 3
DVD Region Codes



Push-Push Card Reader

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

Multi-In-1 Card Reader

The card reader allows you to use some of the latest digital storage cards. Push the card into the slot and it will appear as a removable device, and can be accessed in the same way as your hard disk (s). Make sure you install the card reader driver (see *“CardReader” on page 4 - 7.*

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

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



Figure 2 - 4
Left View

1. Card Reader

Smart Card Reader

The Smart Card reader reads pocket-sized Smart Cards, chip cards, or integrated circuit cards (ICC) with embedded integrated circuits. Smart Cards can be used for security identification, authentication, data storage and application processing within large organizations.

A Smart Card uses a gold contact that connects to a tiny microprocessor and memory chips embedded inside the card. The card is usually used to store authentication data e.g. a user name and password. The computer's Smart Card reader communicates through the gold contact on the card to the microprocessor, and if the data on the card matches that stored in the computer, then access is granted. A Smart Card can also be used to securely encrypt and decrypt individual files on the computer.



Smart Card Driver

Smart Cards usually require a driver for any proprietary smart card system. This driver will usually be supplied by your system administrator as applicable to your particular Smart Card system.



Figure 2 - 5
Left View

1. Smart Card Reader



Touchpad Cleaning

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

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

Disabling the Pad

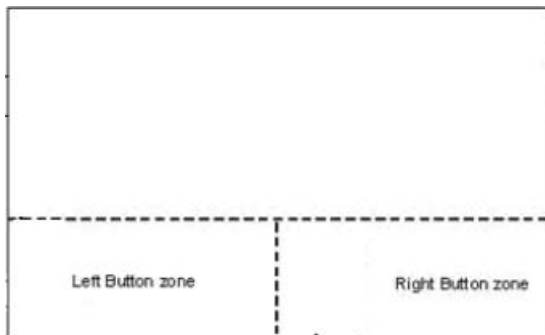
Use the **Fn + F1** or Control Center button to disable the Touchpad.

Touchpad and Buttons/Mouse

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

Touchpad Sensitivity

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



Mouse Driver

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

Figure 2 - 6
Touchpad Sensitivity

Mouse Properties Control Panel

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

1. Select **Control Panel** under the **Windows System** item in the **Start Menu** (see page [1 - 26](#)), or click **Additional mouse options** from **Mouse** in **Windows Settings** (see page [2 - 12](#)).
2. Click **Mouse (Hardware and Sound > Devices and Printers)**.
3. Click the menu headings tabs to adjust your mouse preferences.

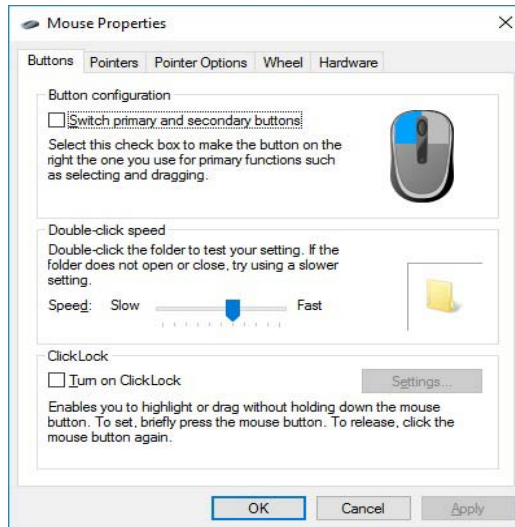
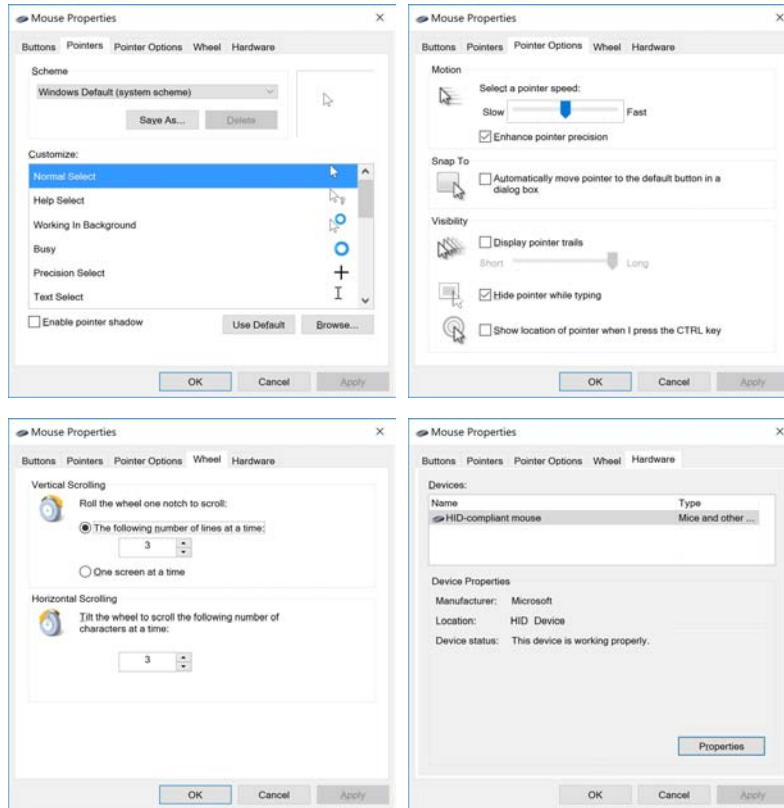


Figure 2 - 7
**Mouse Properties
Control Panel -
Buttons**

Figure 2 - 8
Mouse Properties
Control Panels



Mouse & Touchpad Devices

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

1. Click the **Settings** item in the **Start Menu** (or **All Settings** in the Action Center).
2. Click **Devices**.
3. Click **Mouse or Touchpad**.

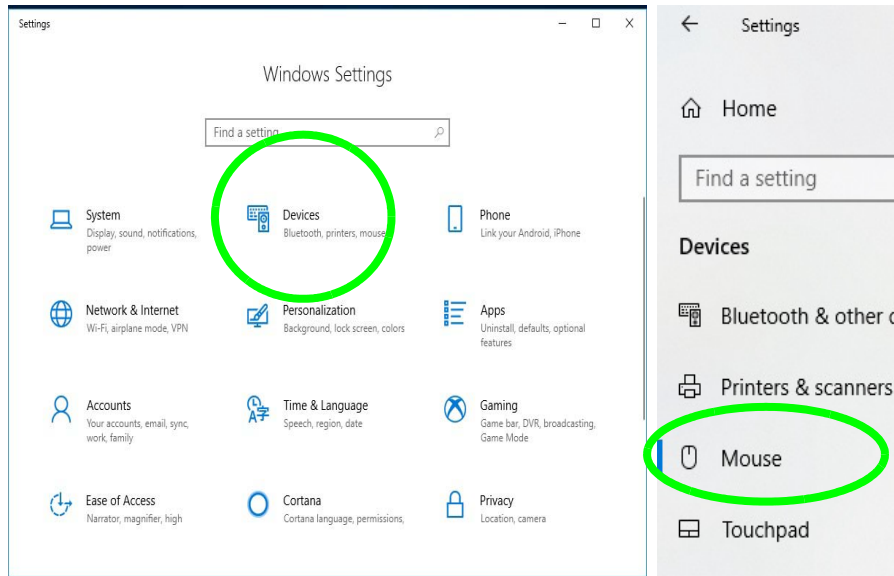


Figure 2 - 9
Windows Settings
> Mouse/Touchpad

Mouse Settings

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

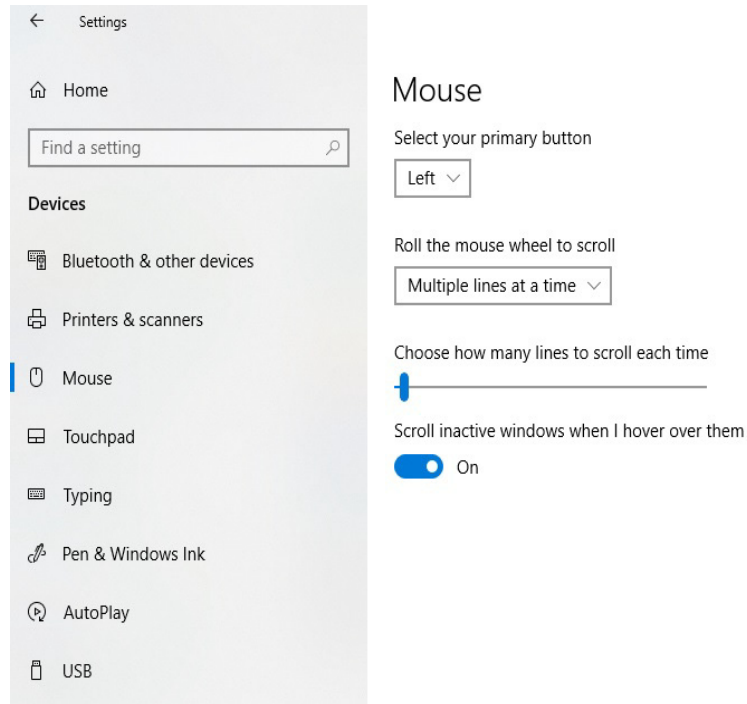


Figure 2 - 10
Windows Settings
Mouse

Touchpad Settings

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

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

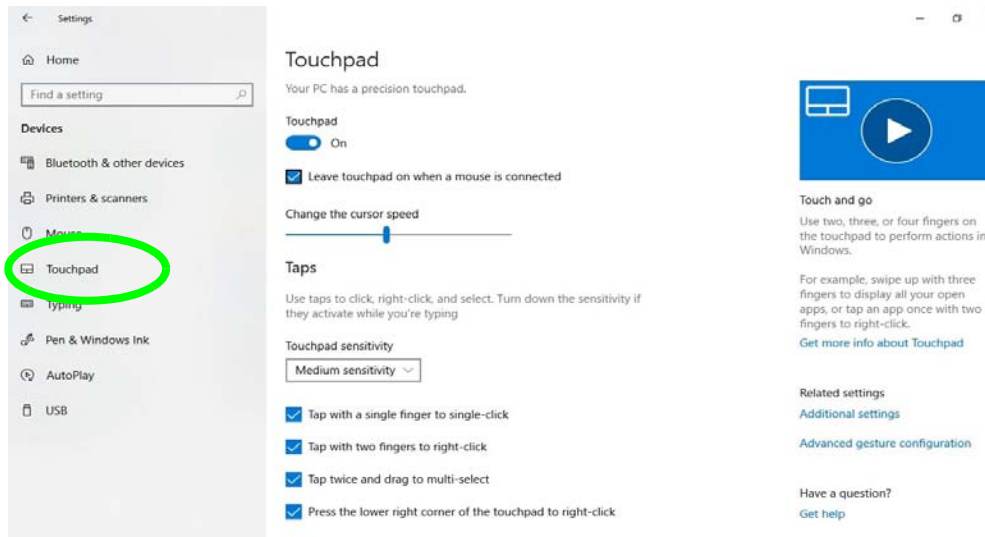


Figure 2 - 11
Windows Settings
Touchpad
(Touchpad turned off
when mouse
connected)

Touchpad Taps

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

Click in the check box to enable/disable the different gestures or taps on the surface of the pad to perform specific actions to manipulate documents, objects and applications.

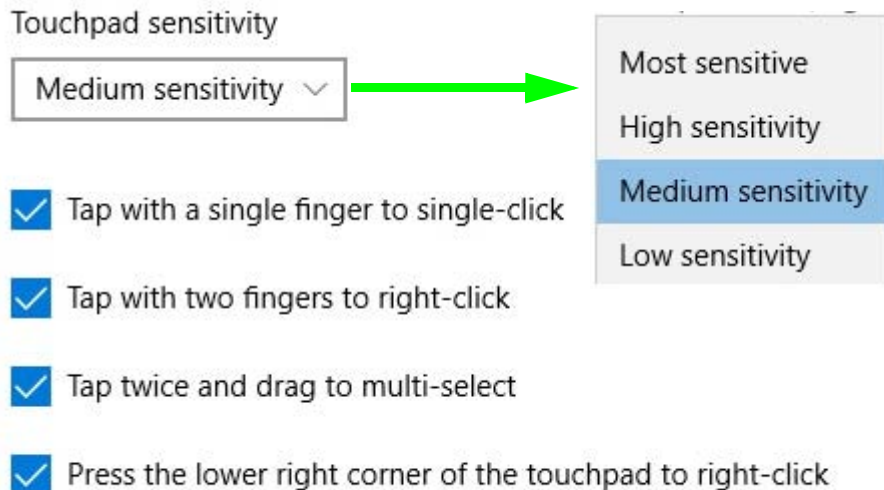


Figure 2 - 12
Windows Settings
Touchpad
Sensitivity & Taps

Touchpad Scroll and Zoom

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



Figure 2 - 13
**Scroll and Zoom/
Scrolling Gesture**

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

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

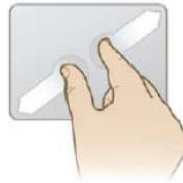


Figure 2 - 14
Zooming Gesture

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

Figure 2 - 15
Three-Finger Gestures (Swipes & Taps)

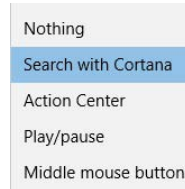
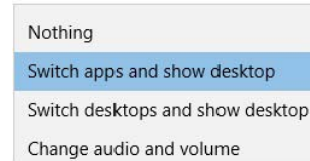
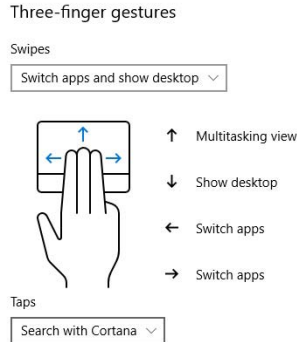
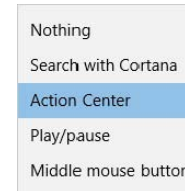
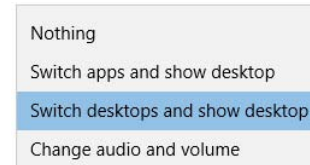
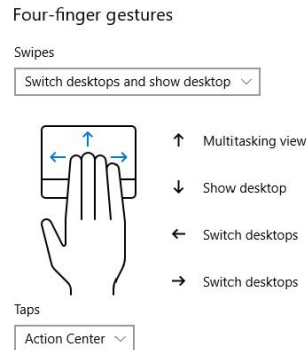


Figure 2 - 16
Four-Finger Gestures (Swipes & Taps)



The following is an overview of some of the main gestures you can use with your Touchpad, however these can be configured from the Touchpad menus.

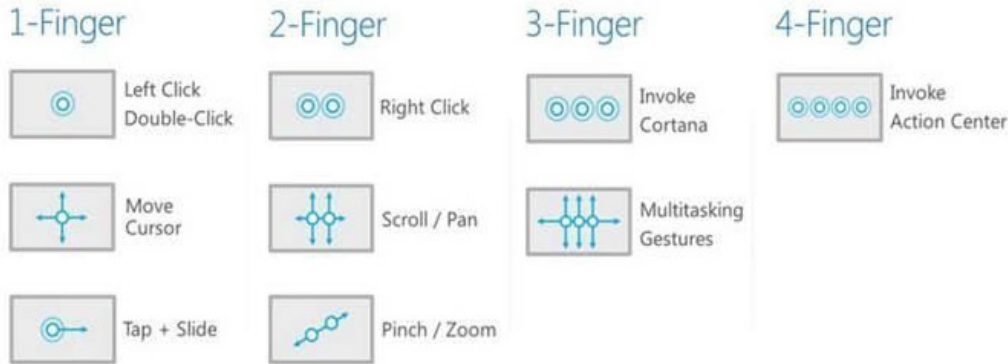



Figure 2 - 17
**Touchpad
Gesture Examples**



Volume Adjustment

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

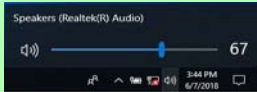

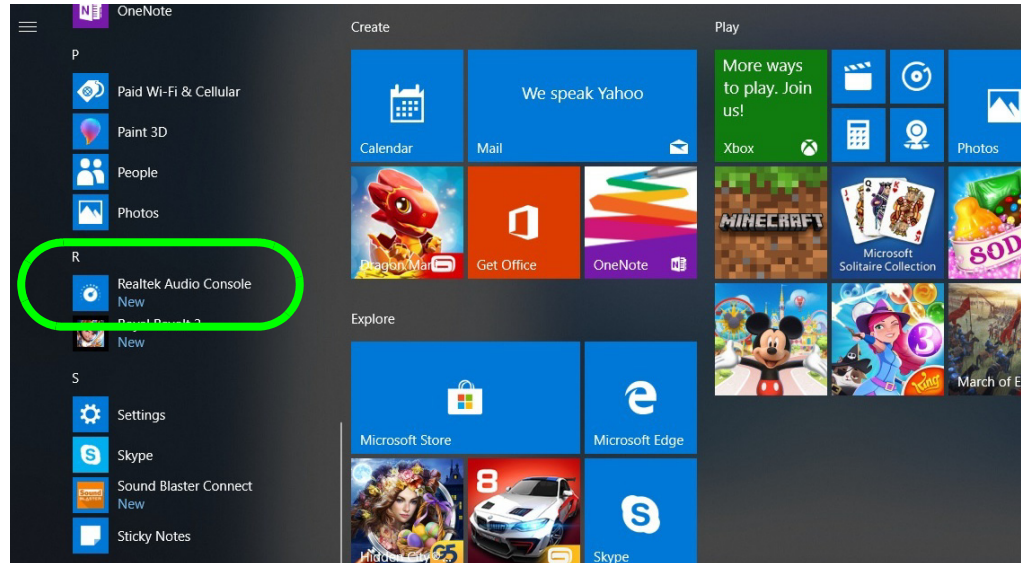


Figure 2 - 18
Realtek Audio Console
(Windows Start Menu)

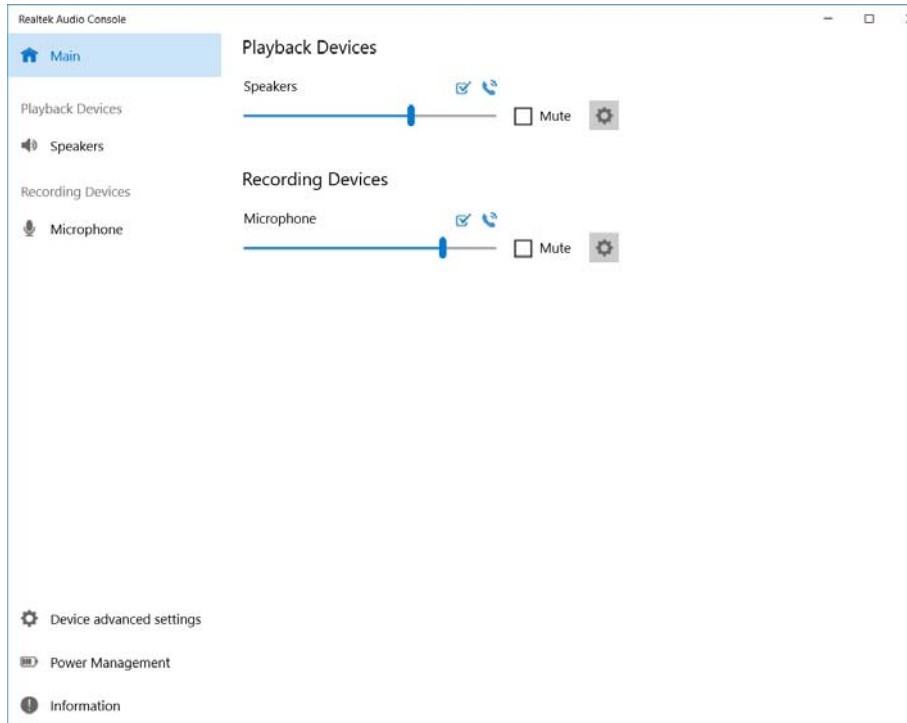
Realtek Audio Console

You can configure the audio options on your computer from the **Sound**  control panel in *Windows*, or from the **Realtek Audio Console Windows Start menu**. **Make sure you have installed the driver and checked the Microsoft Store for updates** (see *“Audio” on page 4 - 8*). The volume may also be adjusted by means of the **volume icon in the taskbar** or the **audio slider in the Settings menu** (see sidebar).



Realtek Audio Console - Main

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




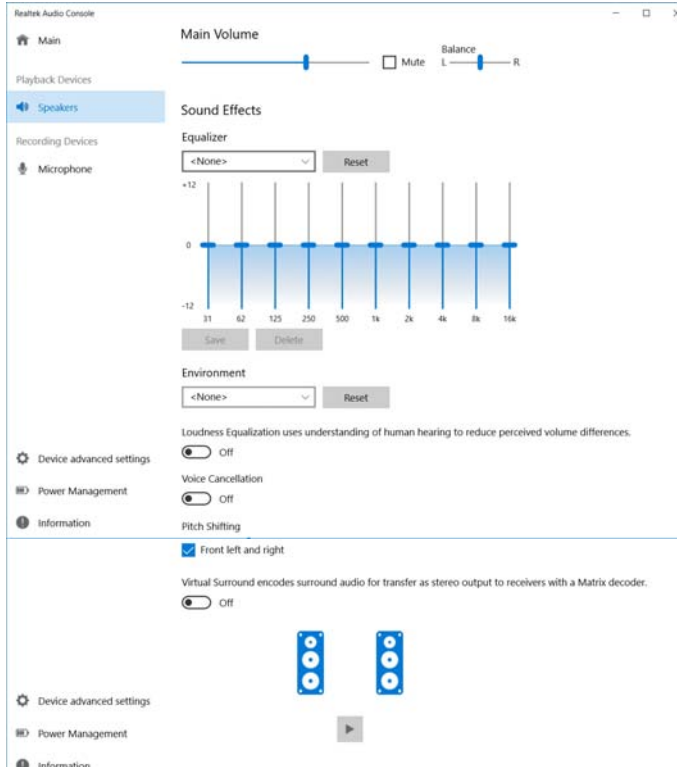

HD Audio
 HD Audio parameters can be set in the BIOS (see page 5 - 10).

Figure 2 - 19
Realtek Audio Console (Main)

Realtek Audio Console - Speakers

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

Figure 2 - 20
Realtek Audio Console (Speakers)



Realtek Audio Console - Microphone

Click **Microphone** to access advanced controls for recording on the microphone. Adjust the recording **Main Volume** level to around **60**, to obtain the optimum recording quality.

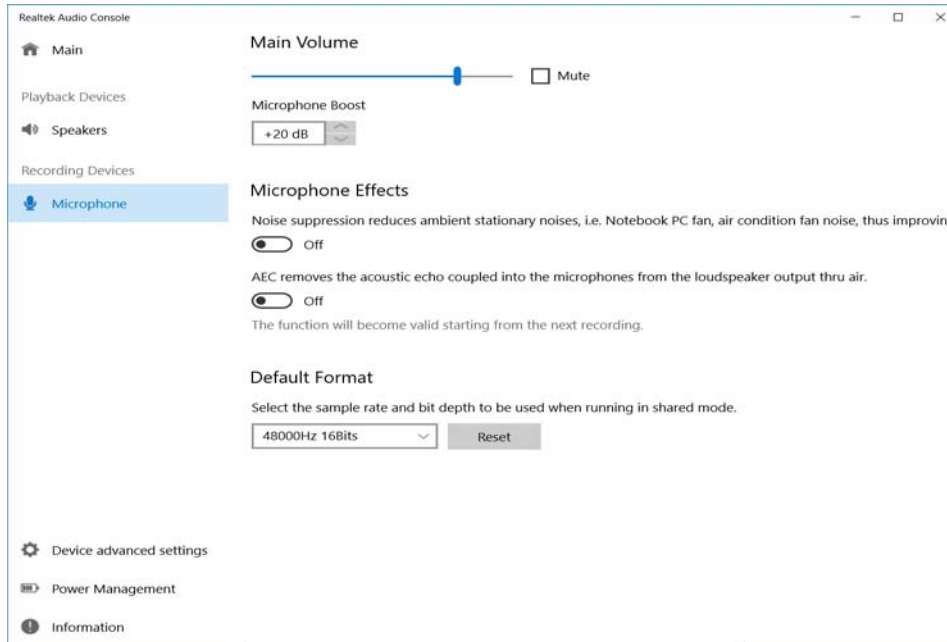


Figure 2 - 21
Realtek Audio Console (Microphone)



Device Advanced Settings

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

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

Realtek Audio Console - Device Advanced Settings

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

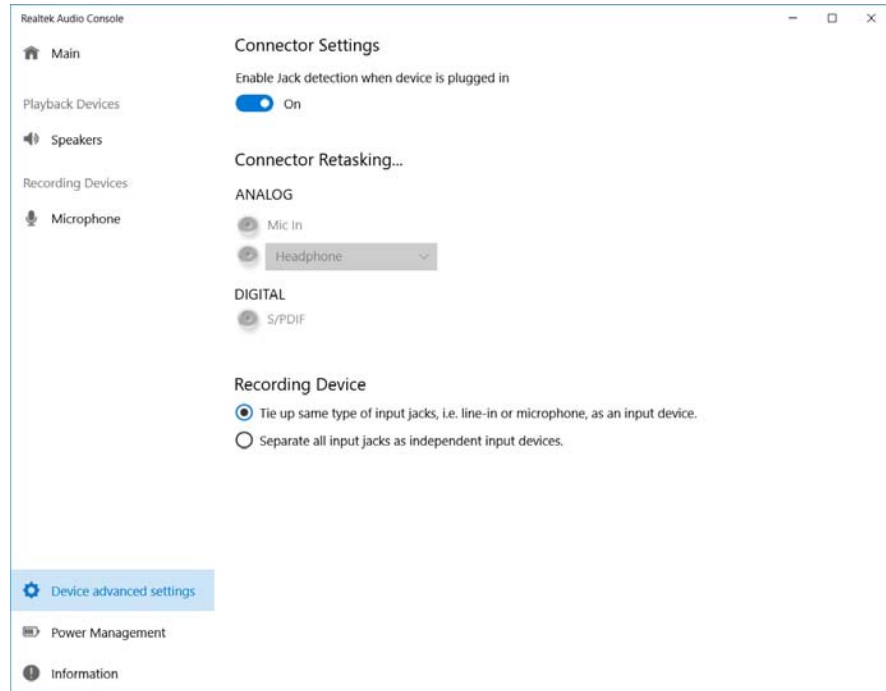


Figure 2 - 22
Realtek Audio Console - Device Advanced Settings

Chapter 3: Power Management

Overview

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

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

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



OS Note

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

(**Note:** All pictures used on the following pages are from the *Windows 10* OS.)

Power Options

Power management in *Windows* is configured from **Power Options (Hardware and Sound)**, which can be accessed from the **Control Panel**.



Forced Off

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

The Power Sources

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

AC/DC Adapter

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

1. **When first setting up the computer use the following procedure** (as to safeguard the computer during shipping, the battery will be locked to not power the system until first connected to the AC/DC adapter and initially set up as below):
 - Attach the AC/DC adapter cord to the DC-In jack on the left of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter and **leave it there for 6 seconds or longer**.
 - Remove the adapter cord from the computer’s DC-In jack, and then plug it back in again; the battery will now be unlocked.
2. Raise the lid/LCD to a comfortable viewing angle.
3. Press the power button to turn “On”.

Battery

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

We recommend that you do not remove the battery. For more information on the battery, please refer to *“Battery Information” on page 3 - 16*.

Turning On the Computer

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


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



Power Button as Stand by or Hibernate Button

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

Shutting the Computer Down

Note that you should always shut your computer down by choosing the **Shut down** command as this will help prevent hard disk or system problems. Use the **Power**  item in the **Start Menu** and select **Shut down**. If you want to add Hibernate/Sleep to the Power Menu see *“Adding Hibernate/Sleep to the Power Menu” on page 3 - 10*.



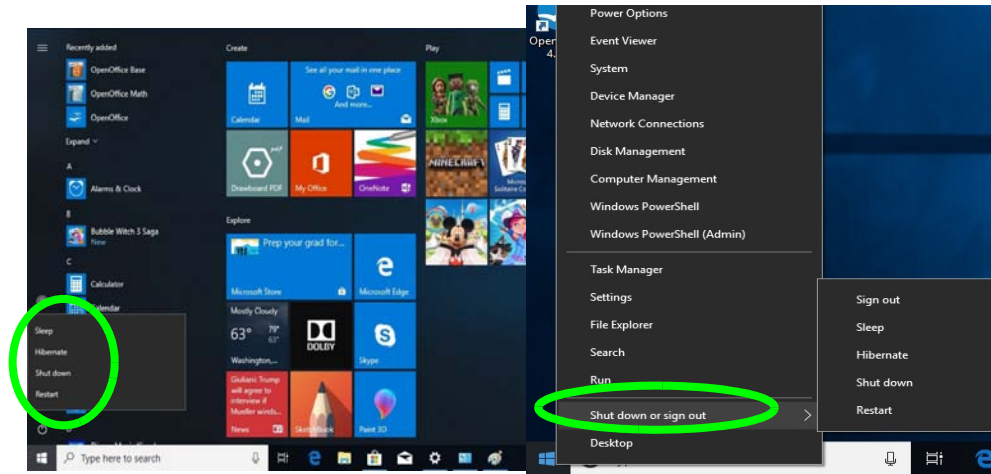
You can also use the **context menu** (right-click the Start Menu  icon or press the Windows logo  + X key combination) to **Sign out**, **Sleep**, **Hibernate**, **Shut down**, and **Restart**.

Figure 3 - 1
Shut Down/Restart

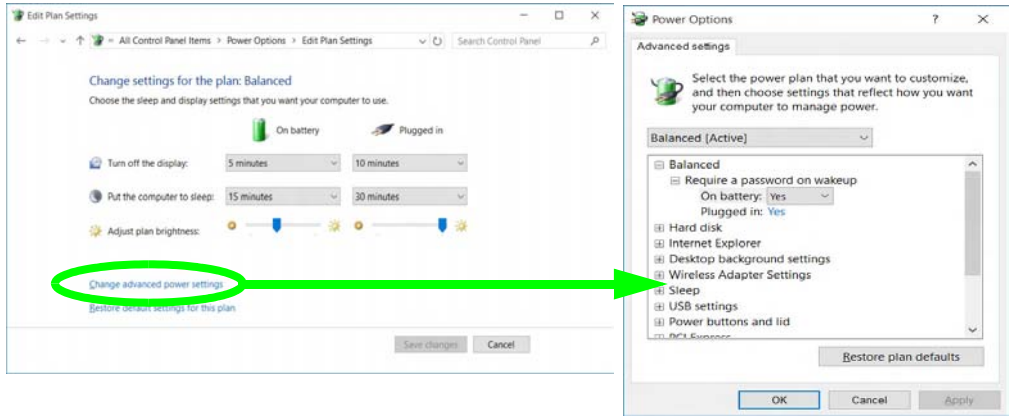


Power Plans

The computer can be configured to conserve power by means of **power plans (Control Panel > Power Options)**. You can use (or modify) an existing **power plan**, or create a new one.

The settings may be adjusted to set the **display** to turn off after a specified time, and to send the computer into **Sleep** after a period of inactivity.

Click *Change plan settings* and then click *Change advanced power settings* to access further configuration options in **Advanced Settings**.



Resuming Operation

See [Table 3 - 1, on page 3 - 11](#) for information on how to resume from a power-saving state.

Password

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

Figure 3 - 2
Power Plan
Advanced Settings

Power Management

3

Each **Windows power plan** will also adjust the processor performance of your machine in order to save power. This is worth bearing in mind if you are experiencing any reduced performance (especially under DC/battery power).

Choose **High performance** (you may need to click **Create a power plan** to select the High performance plan) for maximum performance when the computer is powered from an AC power source. Choose the **Power saver** (bear in mind that this scheme may slow down the overall performance of the computer in order to save power) for maximum power saving when the computer is battery (DC power) powered.

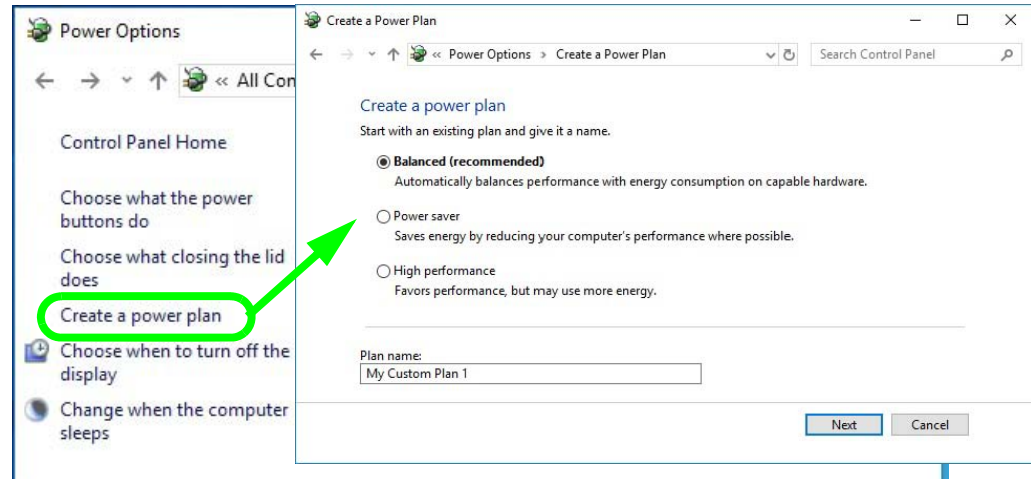


Figure 3 - 3
**Create Power Plan
(High Performance
& Power Saver)**

3 - 6 Power Plans

Power-Saving States

You can use power-saving states to stop the computer’s operation and restart where you left off. *Windows 10* uses the **Sleep**, **Hibernate** and **Shut Down** power-saving states.

Sleep

In **Sleep** all of your work, settings and preferences are saved to memory before the system sleeps. When you are not using your computer for a certain length of time, which you specify in the operating system, it will enter **Sleep** to save power.

The PC wakes from **Sleep within seconds** and will return you to where you last left off (what was on your desktop) without reopening the application(s) and file(s) you last used.

If your mobile PC in **Sleep** is running on battery power the system will use only a minimum amount of power. After an extended period the system will save all the information to the hard disk and shut the computer down before the battery becomes depleted.

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



Wake On LAN Support

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

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

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

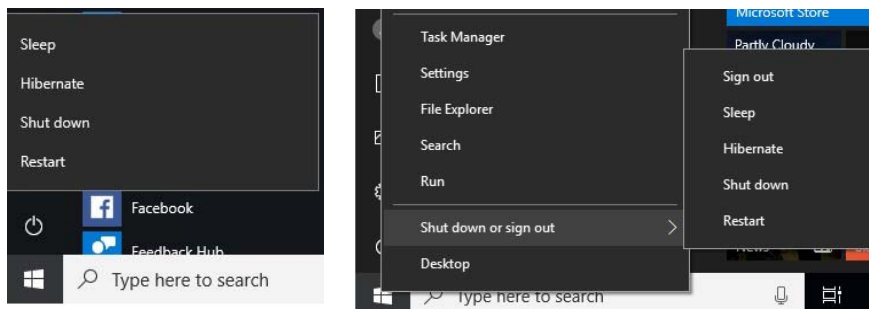
Hibernate

Hibernate uses the least amount of power of all the power-saving states and saves all of your information on a part of the hard disk before it turns the system off. If a power failure occurs the system can restore your work from the hard disk; if a power failure occurs when work is saved only to memory, then the work will be lost. **Hibernate** will also return you to where you last left off within seconds. You should put your mobile PC into **Hibernate** if you will not use the computer for a period of time, and will not have the chance to charge the battery. To add **Hibernate** to the **Power Menu** see *“Adding Hibernate/Sleep to the Power Menu” on page 3 - 10.*

Shut down

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

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



Configuring the Power Buttons

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

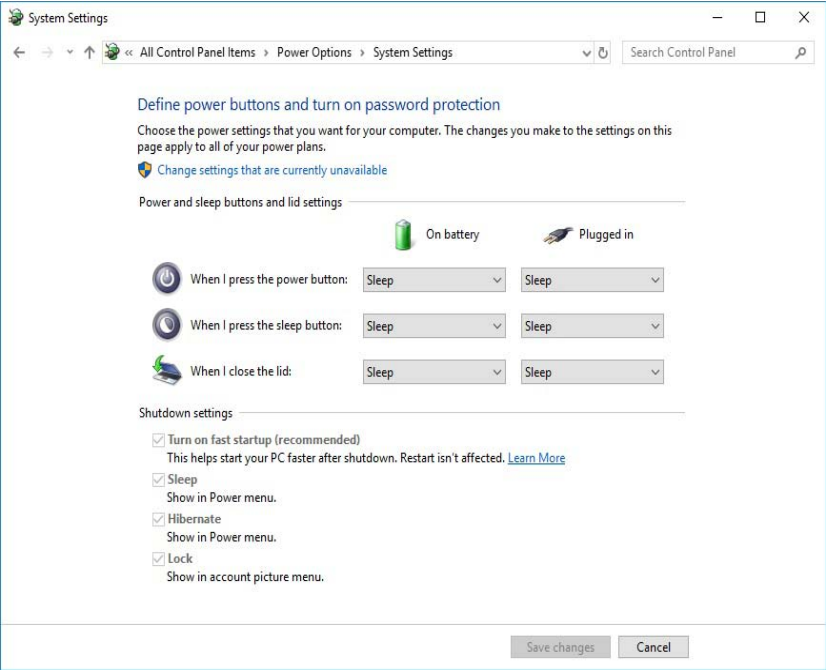



Figure 3 - 5
Power Options
Define Power
Buttons

Adding Hibernate/Sleep to the Power Menu

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

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

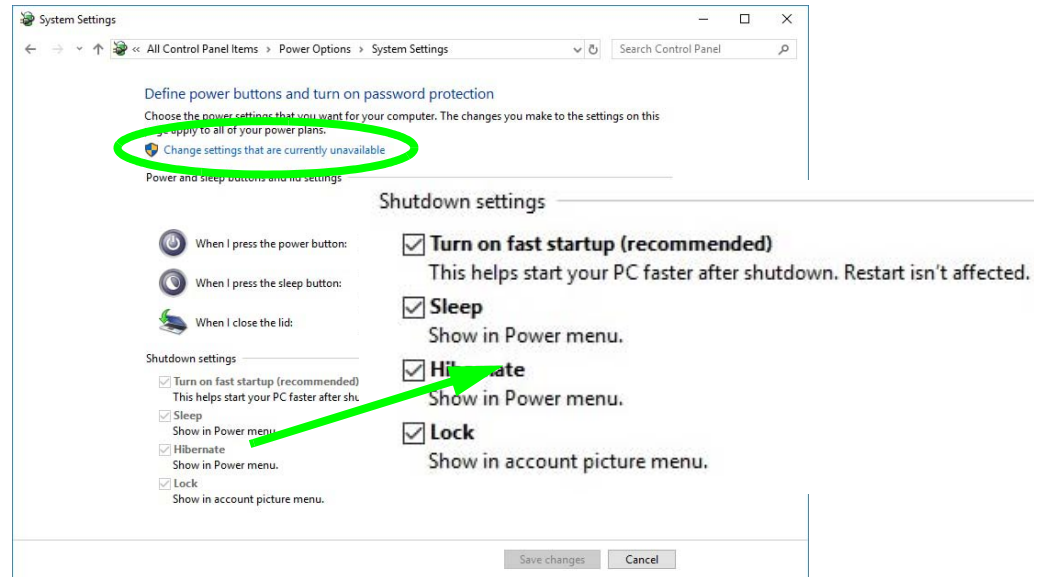


Figure 3 - 6
Power Options
Define Power
Buttons - Shutdown
Settings

Resuming Operation

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




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

Table 3 - 1
Resuming
Operation



Power Button

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



Closing the Lid

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

Ctrl + Alt + Delete Key Combination

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

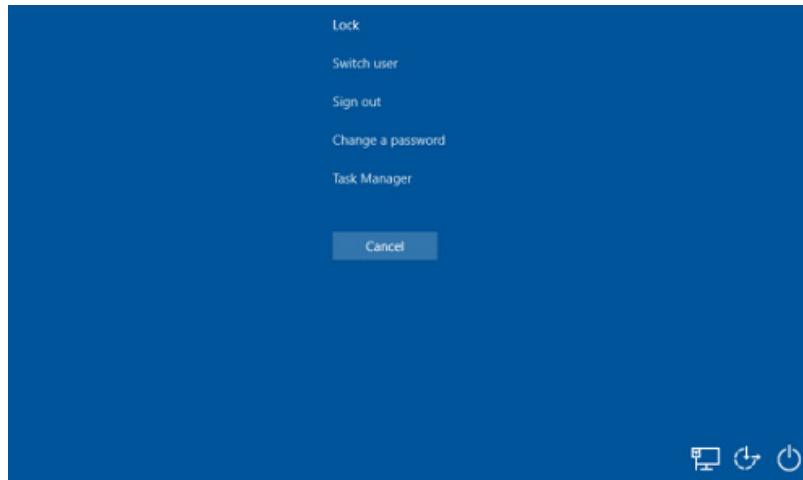


Figure 3 - 7
Ctrl + Alt + Delete
Menu

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

Settings Menu Power Controls

The **Settings** item in the **Start Menu** (or via the **Action Center**) gives you access to a number of power settings control panels which enable you to quickly adjust power options. Click **System** to access the menu including the power option settings.

3

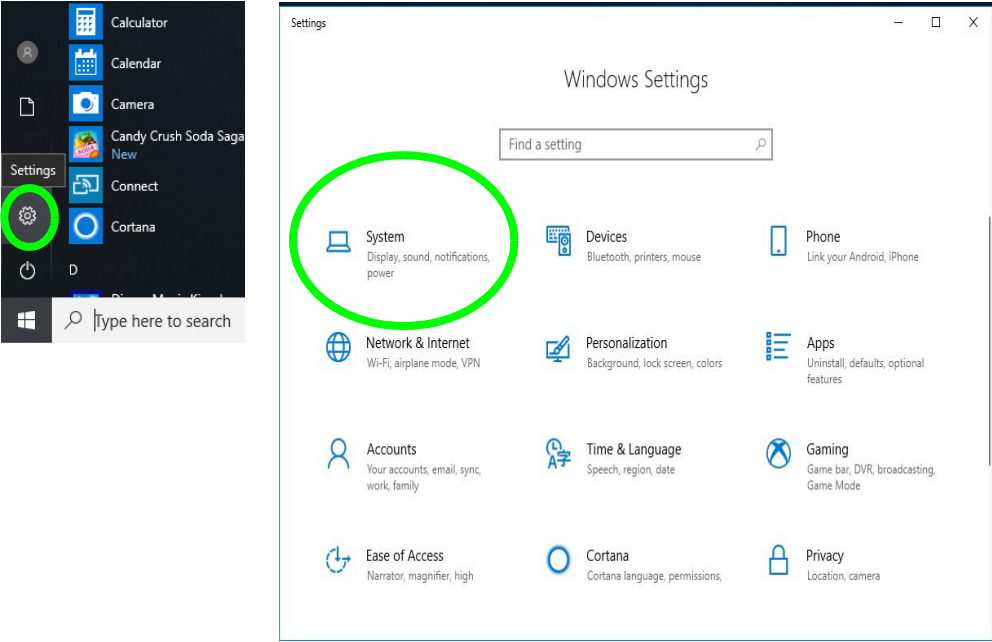


Figure 3 - 8
Settings

Battery Saver

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

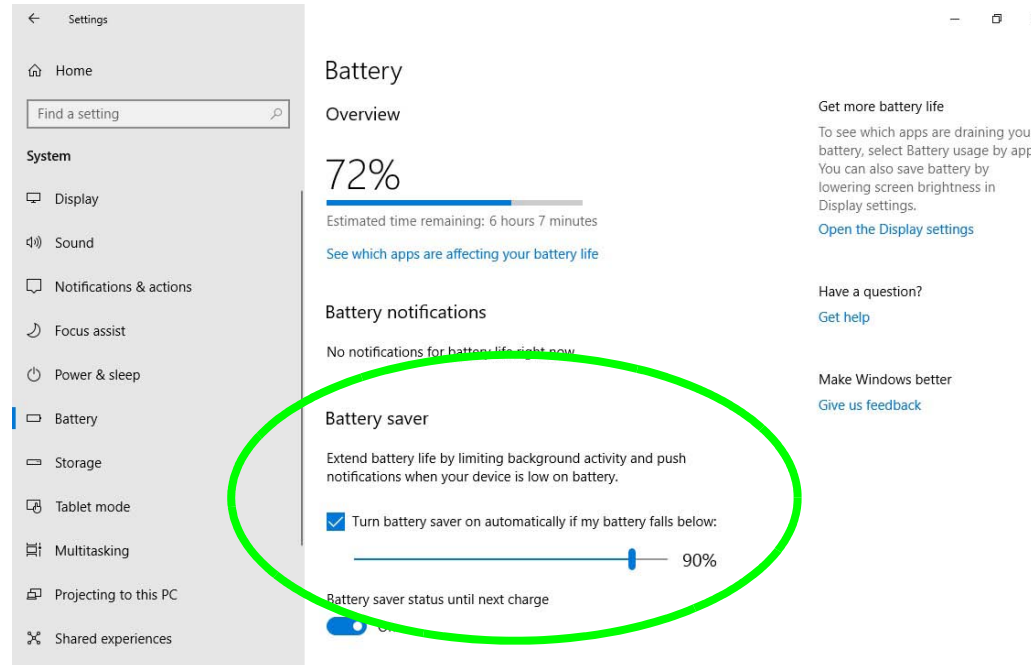


Figure 3 - 9
Settings > Battery >
Battery Saver

Power & Sleep

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

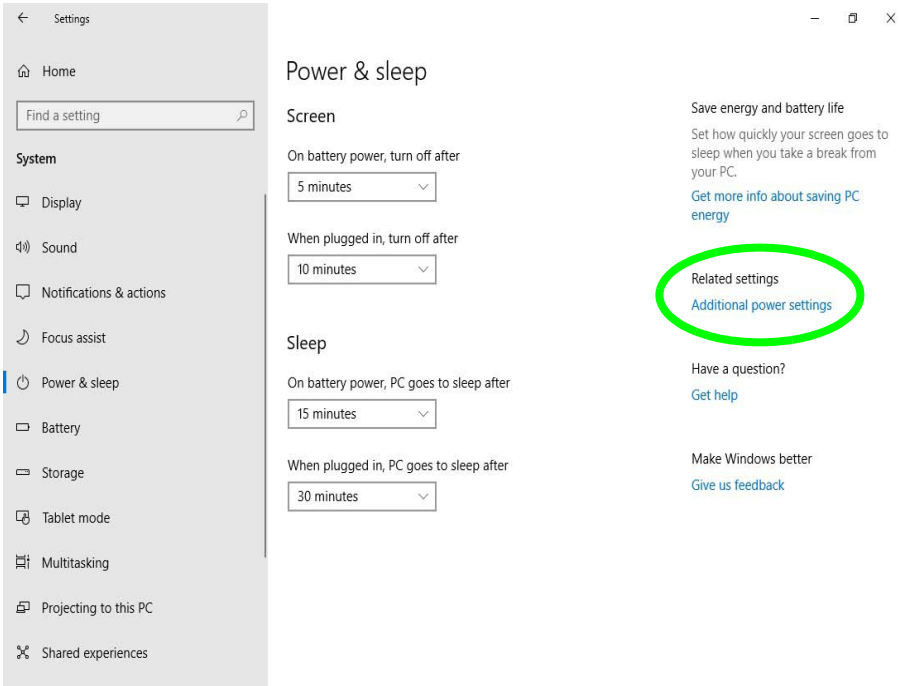


Figure 3 - 10
Settings > Power & Sleep



Low Battery Warning

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

Battery Information

Follow these simple guidelines to get the best use out of your battery.

Battery Power

Your computer's battery power is dependent upon many factors, including the programs you are running, and peripheral devices attached. You can set actions to be taken (e.g. Shut down, Hibernate etc.), and set critical and low battery levels from power plan **Change plan settings > Change advanced power settings** (see [Figure 3 - 3 on page 3 - 6](#)).


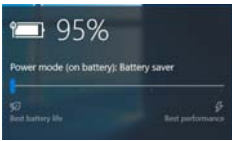
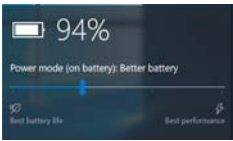
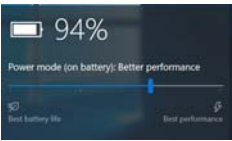


Click the battery icon  in the notification area to see the current battery level and charge status (you can also click **Power & sleep settings** to access the **Settings** menu to quickly adjust power settings).

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



Power Slider Settings

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



Battery Saver

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

Table 3 - 2
Power Slider Settings & Notes



Windows Mobility Center

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

Conserving Battery Power

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

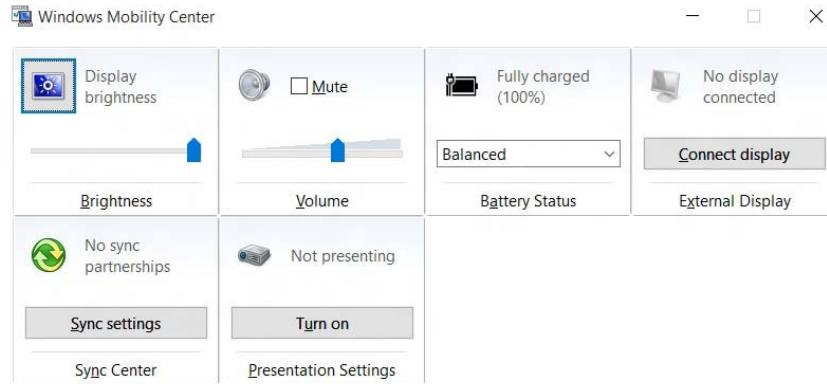


Figure 3 - 12
Windows Mobility Center (Control Panel)

Battery Life

Battery life may be shortened through improper maintenance. **To optimize the life and improve its performance, fully discharge and recharge the battery at least once every 30 days.**

We recommend that you do not remove the battery yourself. If you do need to remove the battery for any reason (e.g. long term storage) see *“Removing the Battery” on page 3 - 24.*

New Battery

Always completely discharge, then fully charge, a new battery (see *“Battery FAQ” on page 3 - 21* for instructions on how to do this).

Recharging the Battery with the AC/DC Adapter

The battery pack automatically recharges when the AC/DC adapter is attached and plugged into an electrical outlet. If the computer is powered on, and in use, it will take several hours to fully recharge the battery. When the computer is turned off but plugged into an electrical outlet, battery charge time is less. Refer to *“LED Indicators” on page 1 - 7* for information on the battery charge status, and to *“Battery FAQ” on page 3 - 21* for more information on how to maintain and properly recharge the battery pack.



Caution

Danger of explosion if battery is incorrectly replaced.

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

Proper handling of the Battery Pack

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



Damaged Battery Warning

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

Battery FAQ

How do I completely discharge the battery?

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

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

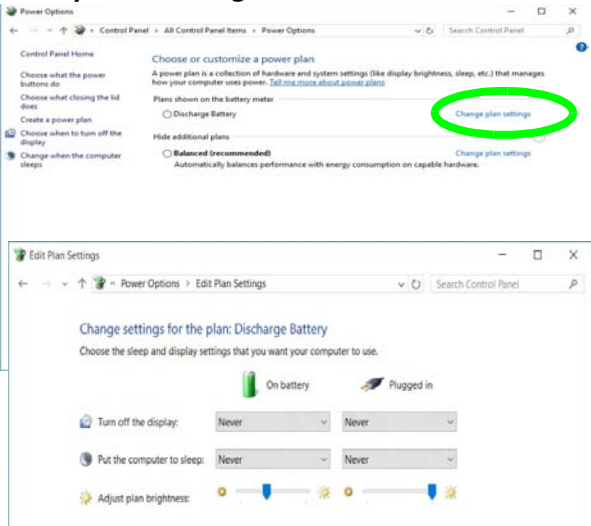


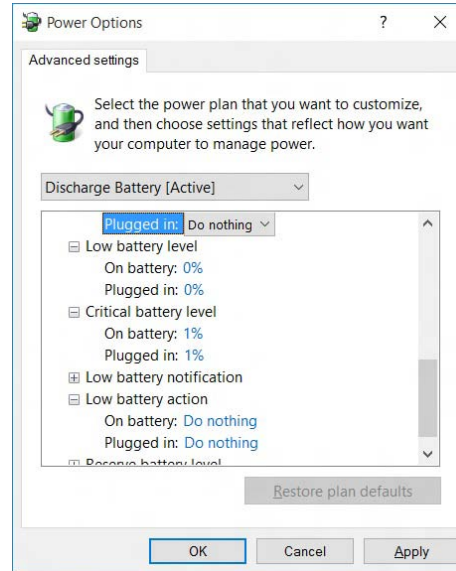
Figure 3 - 13
Change Plan Settings / Change Advanced Power Settings

Power Management

3

Figure 3 - 14
Power Options
Advanced Settings -
Battery

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



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

3 - 22 Battery Information

How do I fully charge the battery?

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

How do I maintain the battery?

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



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.

Removing the Battery

We recommend that you do not remove the battery yourself. If you do need to remove the battery for any reason (e.g. long term storage) see below.

1. Turn the computer **off**, and turn it over.
2. Slide the latch **1** in the direction of the arrow.
3. Slide the latch **2** in the direction of the arrow, and hold it in place.
4. Slide the battery out in the direction of the arrow **3**.

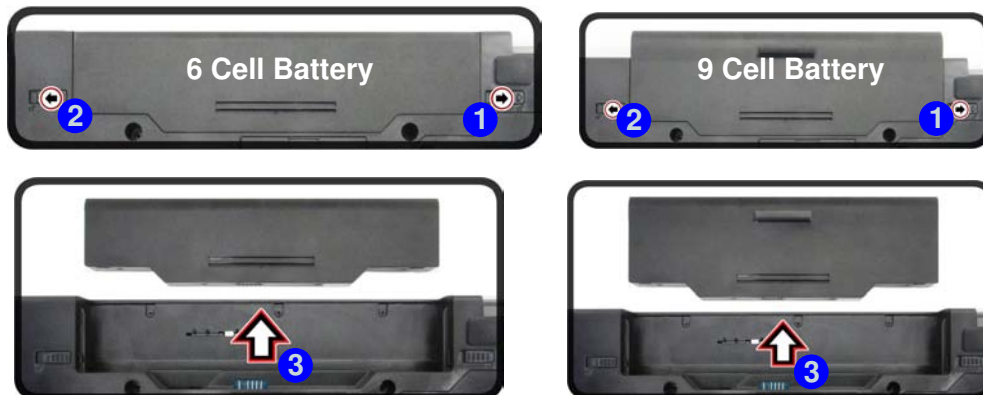


Figure 3 - 15
Battery Removal

Inserting the Battery

1. Turn the computer **off**, and turn it over.
2. Slide the battery into the compartment in the direction of the arrow ①.
3. Slide the latches ② and ③ in the direction of the arrows to lock the battery.



Figure 3 - 16
Battery Insertion

Chapter 4: Drivers & Utilities

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

What to Install

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

Note that the information included on the following pages is for *Windows 10 (64-bit) only.*

Module Driver Installation

The procedures for installing drivers for the **Wireless LAN, Fingerprint, Bluetooth & WLAN Combo** and **Intel Technology** modules are provided in *“Modules & Options” on page 6 - 1.*



Driver Installation & Power

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

Driver Installation

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



Figure 4 - 1 - Drivers Installer Screen 1

4 - 2 Driver Installation

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

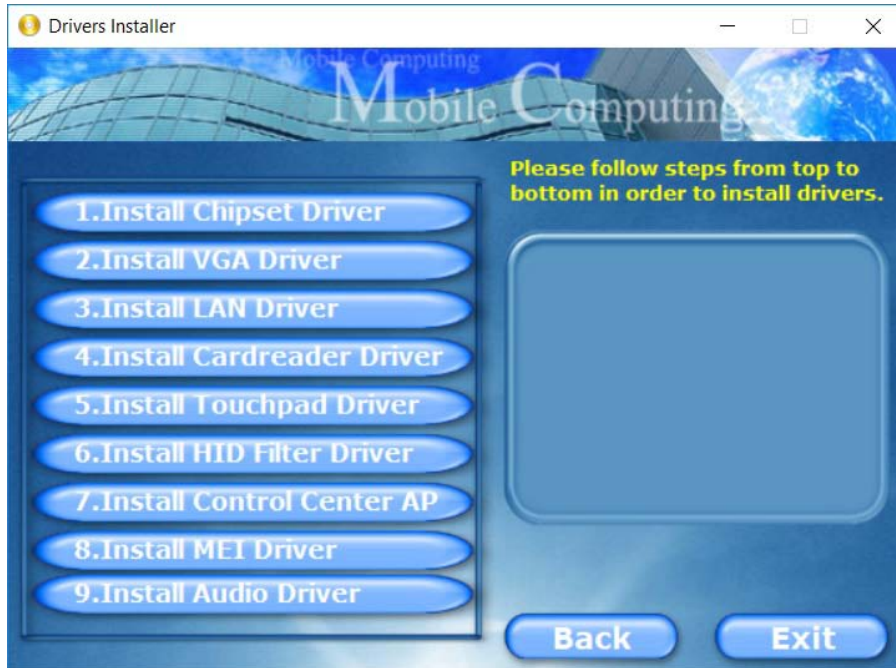


Figure 4 - 2 - Install Drivers

Drivers & Utilities

4

Win 10 Drivers (64-bit) System Required	Page #	Win 10 Drivers (64-bit) Other / Options	Page #
<i>Chipset</i>	<i>Page 4 - 7</i>	<i>Setting Up SATA Mode (Optane™ or AHCI)</i>	<i>Page 6 - 3</i>
<i>Video (VGA)</i>	<i>Page 4 - 7</i>	<i>Wireless LAN Module</i>	<i>Page 6 - 9</i>
<i>LAN</i>	<i>Page 4 - 7</i>	<i>Fingerprint Reader Module</i>	<i>Page 6 - 13</i>
<i>CardReader</i>	<i>Page 4 - 7</i>	<i>Bluetooth Combo Module</i>	<i>Page 6 - 17</i>
<i>Touchpad</i>	<i>Page 4 - 7</i>	<i>Thunderbolt Port Driver</i>	<i>Page 6 - 23</i>
<i>Intel® HID Filter Driver</i>	<i>Page 4 - 7</i>	<i>Intel® Software Guard Extensions</i>	<i>Page 6 - 25</i>
<i>Control Center</i>	<i>Page 4 - 7</i>	<i>Intel® Speed Shift Technology Driver</i>	<i>Page 6 - 26</i>
<i>MEI Driver</i>	<i>Page 4 - 8</i>	<i>Intel® Rapid Storage Technology</i>	<i>Page 6 - 27</i>
<i>Audio</i>	<i>Page 4 - 8</i>	<i>Intel® vPro™ Technology</i> (No driver required)	<i>Page 6 - 37</i>
		<i>Trusted Platform Module</i> (No driver required)	<i>Page 6 - 46</i>
		<i>3G/4G Module</i> (No driver required)	<i>Page 6 - 52</i>

Table 4 - 1 - Driver Installation

All drivers provided are for the Windows 10 (64-bit) operating system.

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

4 - 4 Driver Installation

Manual Driver Installation

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

Windows Update

After installing all the drivers make sure you enable **Check for updates** (**Settings > Update & security > Check for updates**) in order to get all the latest security updates etc. (all updates will include the latest **hot-fixes** from Microsoft). See “*Windows Update*” on [page 4 - 9](#) for instructions.

Updating/Reinstalling Individual Drivers

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

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

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

User Account Control

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

Windows Security Message

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

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

New Hardware Found

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



Driver Installation General Guidelines

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

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

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

Driver Installation Procedure

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

Chipset

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

Video (VGA)

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

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

CardReader

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

Touchpad

1. Click **5.Install Touchpad Driver > Yes**.
2. Click **OK > Restart Now** (this prompt may take a few seconds to appear) to restart the computer.

Intel® HID Filter Driver

1. Click **6.Install HID Filter Driver > Yes**.
2. Click **Next**.
3. Click **Yes** to accept the license.
4. Click **Next**.
5. Click **Finish** to restart the computer.


Control Center


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

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**.

Audio

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

9. To prioritize the Realtek audio driver you can click **Pause all** to pause the download queue.
10. Click on **Realtek Audio Control** and click on the resume icon  to download the driver.
11. When just installed the **Realtek Audio Console** will appear in the **Windows Start** menu.

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

It is recommended you now also install the **Intel Rapid Storage Technology** driver (see "*Intel® Rapid Storage Technology*" on page 6 - 27 - required for AHCI mode hard disks).



Windows Update

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

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

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

Optional Drivers

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



Figure 4 - 3 - Option Drivers

Note that you need to install both the WLAN & Bluetooth drivers for Intel and 3rd party WLAN & Bluetooth Combo modules.

Chapter 5: BIOS Utilities

Overview

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

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

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

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



BIOS Screens

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

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



BIOS Settings Warning

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



BIOS Menus

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

The Insyde BIOS Utility

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

As the boot process proceeds, the computer will tell you if there is anything wrong. If there is a problem that prevents the system from booting, it will display a system summary and prompt you to run the BIOS setup.

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

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

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.

5

Figure 5 - 1
Insyde BIOS Start Screen



5 - 4 Insyde BIOS Start Screen

Mustang W640R Notebook

Insyde BIOS Start Screen Options:

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

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

Boot Manager

Figure 5 - 2
Boot Manager

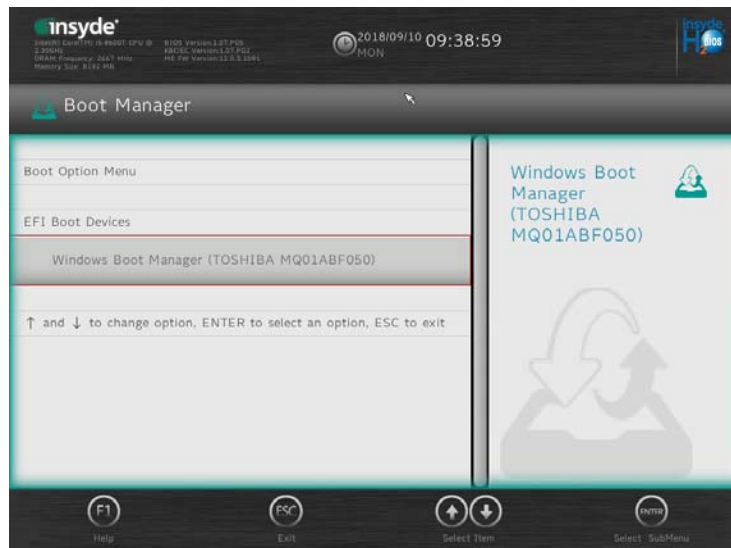
5



BIOS Screens

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

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



When you turn the computer on it will look for an operating system 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.

5 - 6 Boot Manager

Boot From File / File Explorer

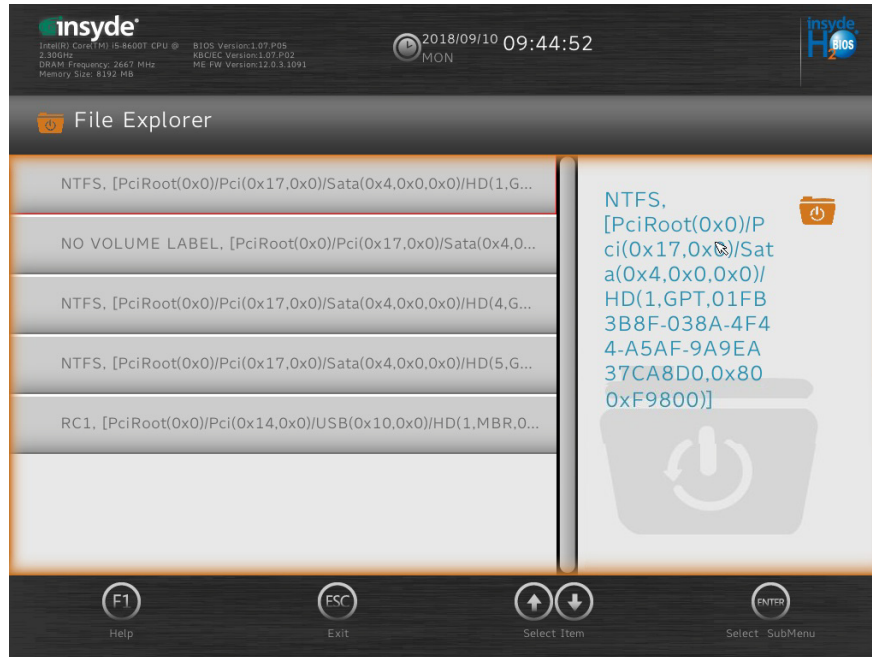
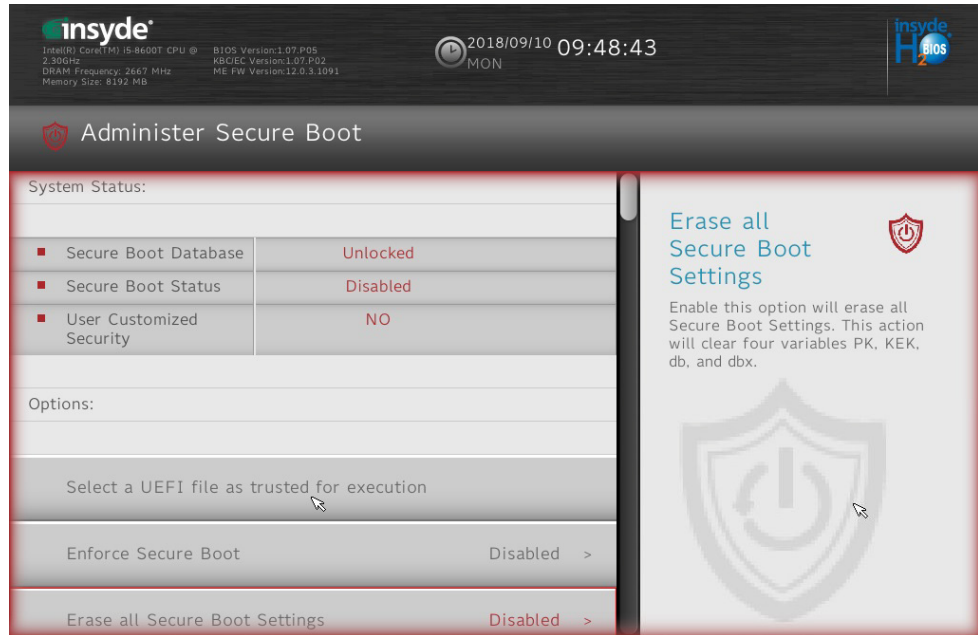


Figure 5 - 3
Boot From File
(File Explorer)

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

Administer Secure Boot



5 *Figure 5 - 4*
Administer Secure Boot

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

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



5

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

Setup Utility - Main Menu

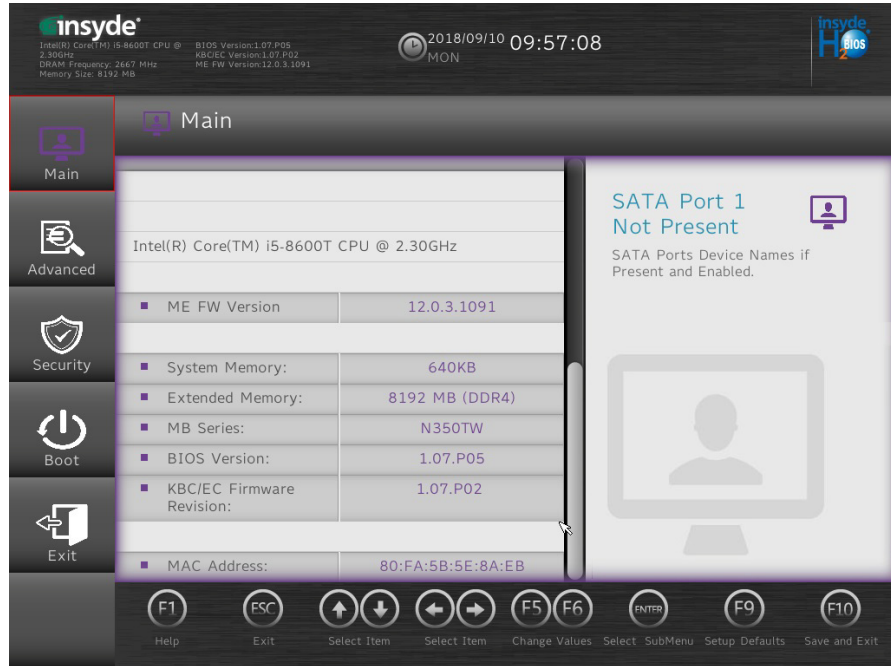


Figure 5 - 6
Main (Upper)

SATA Port # (Main Menu)

Pressing **Enter** opens the sub-menu to show the configuration of a optical Device/HDD on the computer's SATA Ports.

OffBoard SATA/NVme Controller Configuration (Main Menu)

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

System Time & System Date (Main Menu)

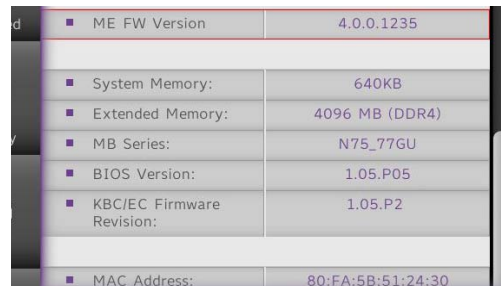
The hour setting uses the 24-hour system (i.e., 00 = midnight; 13 = 1 pm). If you can change the date and time settings in your operating system, you will also change these settings. Some applications may also alter data files to reflect these changes.

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.

MB Series / BIOS Revision / KBC/EC firmware Revision / MAC Address

This item contains information on the BIOS version, network adapter address etc., and is not user configurable.



ME FW Version	4.0.0.1235
System Memory:	640KB
Extended Memory:	4096 MB (DDR4)
MB Series:	N75_77GU
BIOS Version:	1.05.P05
KBC/EC Firmware Revision:	1.05.P2
MAC Address:	80:FA:5B:51:24:30

Figure 5 - 7
Main (Lower)

Setup Utility - Advanced Menu

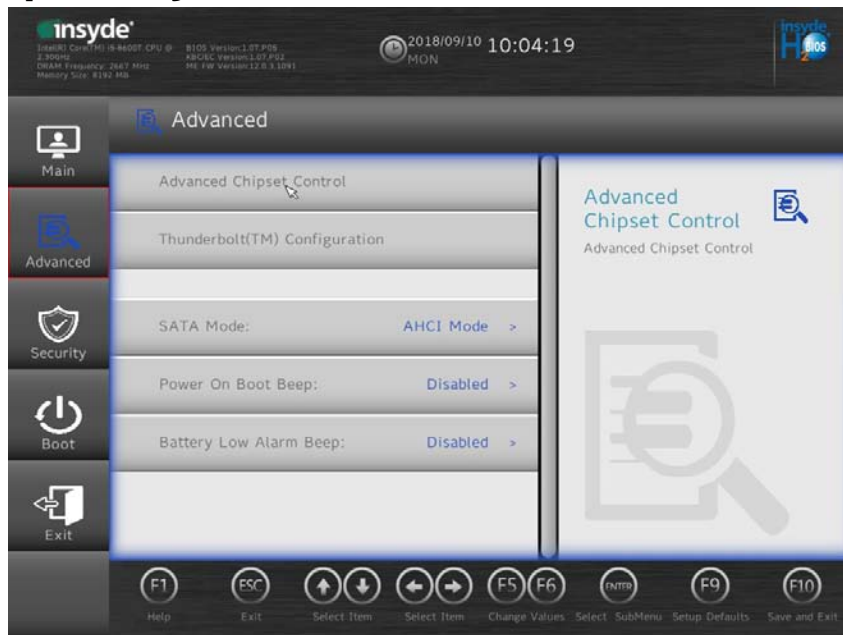


Figure 5 - 8
Advanced Menu

Advanced Chipset Control (Advanced Menu)

The sub-menu here allows you to enable/disable **Intel(R) Speed Shift Technology**, **VT-d UEFI OS Fast Boot**, **Intel Software Guard Extensions** and to configure the **MiniDisplay Port/Thunderbolt port**.



Figure 5 - 9
**Advanced Chipset
 Control Menu**

5

Intel(R) Speed Shift Technology (Advanced Menu > Advanced Chipset Control)
 Use this menu item to enable/disable **Intel® Speed Shift Technology**. You will also need to install the driver for Intel Speed Shift Technology (see *“Intel® Speed Shift Technology Driver” on page 6 - 26*).



Thunderbolt Port Set for Display

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

When the Thunderbolt Port is set for display then **Mini DisplayPort 1** (4 in [Figure 1 - 8 on page 1 - 16](#)) will be turned off.

5

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.

SW Guard Extensions (SGX) - (Advanced Menu > Advanced Chipset Control)

Intel provides SGX, which is a set of instructions allowing user-level code a degree of security, and privacy, from the operating system. Make sure that SW Guard Extensions is **Enabled** here, and then install the driver (see [“Intel® Software Guard Extensions” on page 6 - 25](#)) to support this.

DDI Control (Advanced Menu > Advanced Chipset Control)

You can change **DDI (Display Digital Interface)** control from **DDI to mDP (Mini DisplayPort)** or **DDI to TBT (Thunderbolt)** here to support external displays connected to these ports, if you have included a Thunderbolt port in your purchase configuration.

SATA Mode (Advanced Menu)

The SATA (Serial ATA) control is configured to operate in **AHCI Mode** (Advanced Host Controller Interface) or in **RAID Mode** (for **Intel® Optane™**).

The **SATA Mode** should be set **BEFORE installing an operating system**, and after you have backed up all necessary files and data (see sidebar). See **“*Setting Up SATA Mode (Optane™ or AHCI)*” on page 6 - 2** for details. Make sure you install the **Intel Rapid Storage Technology application** if you have set the SATA Mode to **Intel RST Premium With Intel Optane System Acceleration (for Intel Optane)**, or to **AHCI** (see **“*IRST Driver Installation*” on page 6 - 22**).

If you wish to change your SATA mode to/from AHCI/Intel RST (Optane) mode 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 SATA mode then backup any necessary data on your hard disk(s) as you will need wipe the disks clean in order to prevent system problems.

Power On Boot Beep (Advanced Menu)

Use this menu item to enable/disable the beep as the computer starts up.

Battery Low Alarm Beep (Advanced Menu)

Use this menu item to enable/disable the battery low alarm beep.

Intel(R) Thunderbolt Support (Advanced Menu > Thunderbolt Configuration)

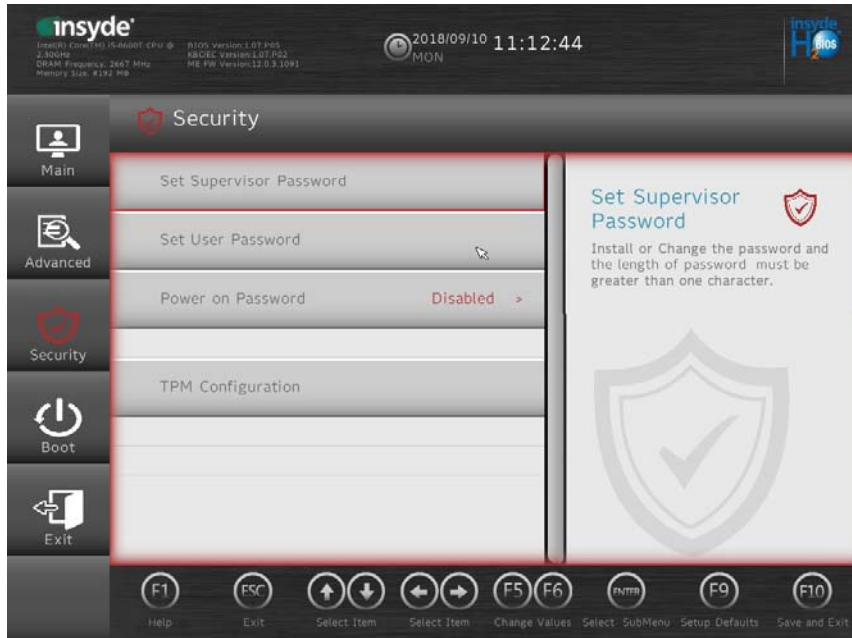
You can enable/disable discrete **Intel(R) Thunderbolt** port support from this menu.

Security Level (Advanced Menu > Thunderbolt Configuration)

You can set the security level to **No Security**, **User Authorization**, **Secure Connect** or **Display Port Only**.

- **No Security mode will allow any devices to be connected.** In this mode the connection manager auto connects to any new devices which are plugged in.
- With **User Authorization** you can set the port to allow only devices with a **Unique ID** to connect. **If the unique ID is not located then you will be asked to confirm the connection.** The connection manager will request approval from the host and auto approval may be given based on the unique ID of the connecting device.
- With **Secure Connect** you can set a **one time saved key** only then **the host will write a unique ID to a device to ensure only approved devices can connect.** The connection manager will request approval from the host, and auto approval is only given if the host challenge to the device is acceptable.
- Setting the port to **Display Port only will only allow display devices to connect to the port, and no data connections will be allowed.** In this mode only displays are connected (re-driver or DP tunnel, no PCIe tunneling) and no tunneling is done for PCIe devices.

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**). An on-screen keyboard is available to assist with keyboard input.



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 5 - 10
Security Menu*



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.

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**”.

TPM Configuration (Security Menu)

This sub-menu will allow you to enable/disable Trusted Platform Module (TPM) support, and to configure the TPM State. Select **TPM Configuration** and press Enter to access the sub-menu. Press Enter to access the **Security Device Support** menu and select **Enable** to support TPM. To reset the TPM select **Clear TPM** to clear existing TPM information (see *“Trusted Platform Module” on page 6 - 46*).



Figure 5 - 11
Security Menu
TPM Configuration

Setup Utility - Boot Menu

Figure 5 - 12
Boot Menu & EFI

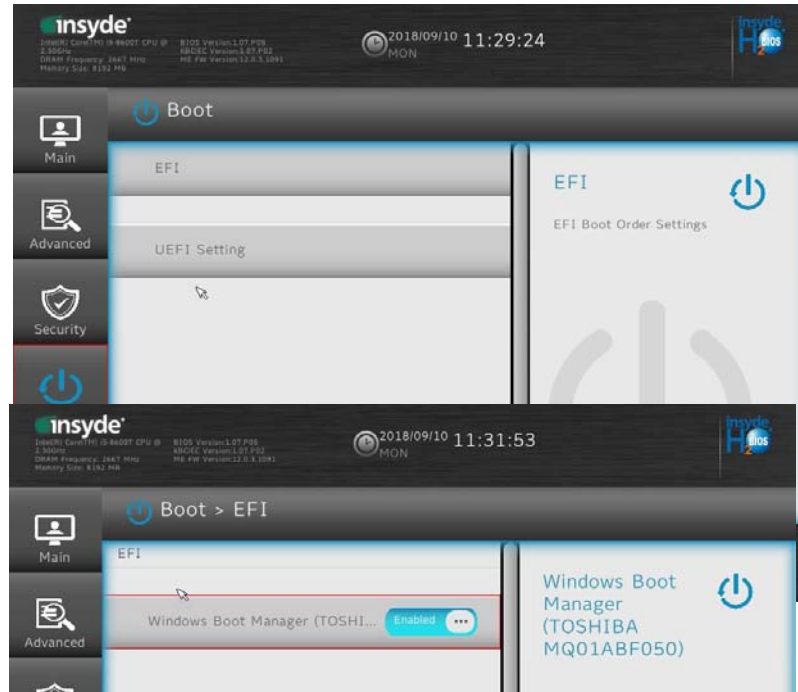
5



BIOS Screens

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

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



EFI (Boot Menu)

Press Enter to Enable/Disable any available device from which to boot under EFI.

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** and **PXE Boot capability** can be enabled/disabled and configured here.



5

Figure 5 - 13
UEFI Setting

Setup Utility - Exit Menu

Figure 5 - 14
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 6: Modules & Options

Overview

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

- Setting Up SATA Mode (Optane™ or AHCI)
- Wireless LAN Module
- Fingerprint Reader Module
- Bluetooth Combo Module
- Intel® Software Guard Extensions
- Intel® Speed Shift Technology Driver
- Intel® Rapid Storage Technology
- Intel® vPro™ Technology
- Intel® vPro™ Technology
- Trusted Platform Module
- 3G/4G Module
- Spare Parts



Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the module(s) are **OFF** if you are using the computer aboard aircraft.



Driver Installation & Module Power

Make sure any modules (e.g. WLAN, PC Camera, 4G & Bluetooth modules) are **ON** before installing the appropriate driver.



Important Notice

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

Important Notice - 4G & Bluetooth/Wireless LAN Modules

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

Setting Up SATA Mode (Optane™ or AHCI)

AHCI Mode

Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced serial ATA features such as Native Command Queuing (for maximum hard disk efficiency and performance). Make sure you install the **Intel® Rapid Storage Technology** application to support your HDDs/SSDs in AHCI mode (see *“Intel® Rapid Storage Technology” on page 6 - 27*).

Intel® Optane™

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

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

Intel® Rapid Storage Technology Application

Make sure you install the **Intel® Rapid Storage Technology** application if you have set up your system in **RAID** (for **Intel® Optane™**) mode (see *“Intel® Rapid Storage Technology” on page 6 - 27*).

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



SATA Mode Selection

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

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

See *“SATA Mode (Advanced Menu)” on page 5 - 15*.



Optane SSD Module Removal

If you need to remove an installed Optane SSD module for any reason, you must disable (see [“Disabling Intel® Optane™” on page 6 - 33](#)) Intel Optane before doing so.

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

Intel® Optane™ Setup Procedure

After initial setup make sure you install the **Intel Rapid Storage Technology driver** - see [“IRST Driver Installation” on page 6 - 27](#)).

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

- =====
- The **Microsoft Windows 10 OS DVD**.
 - An Intel® Optane™ SSD installed in your system.
 - The **Device Drivers & Utilities + User’s Manual** disc.
- =====

1. Start-up your notebook computer and press <F2> to enter the **BIOS**.
2. Go to the **Boot** menu, select **UEFI Setting** and press <Enter> (see page [5 - 15](#)).
3. Set **UEFI Boot** to “**Enabled**”.
4. Press <Esc> to exit the menu and go to the **Main** menu.
5. Select **OffBoard NVMe Controller Configuration** and press enter to check that an Intel® Optane™ SSD is present.
6. Press <Esc> to exit the menu and go to the **Advanced** menu.

7. Select **SATA Mode** (see page 5 - 11), press <Enter> and select “**RAID Mode.**”.

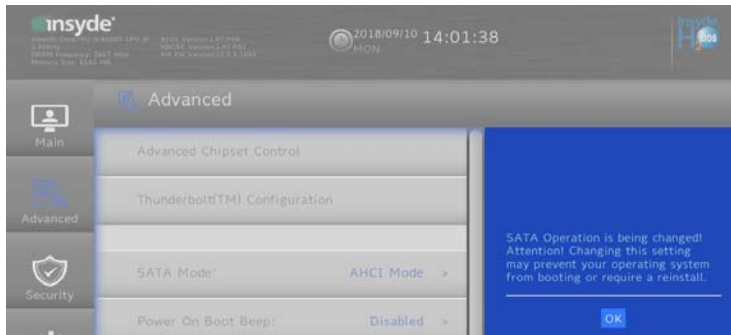


Figure 6 - 1
SATA Mode Set to RAID

8. Select “**Save and Exit**”.
9. As the computer restarts press <F2> to enter the **BIOS** again.
10. Go to the **Advanced** menu and you will now see the **Intel(R) Rapid Storage Technology (Advanced menu)** item. You can and press <Enter> to check the information.

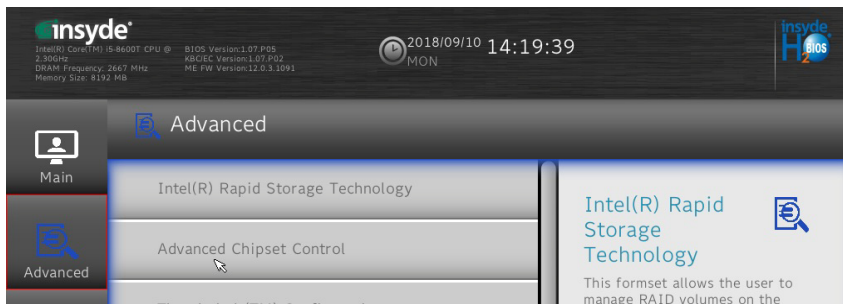


Figure 6 - 2
Intel(R) Rapid Storage Technology

Modules & Options

(Note this item only appears after you have restarted and accessed the BIOS again after having set **SATA Mode to RAID**)

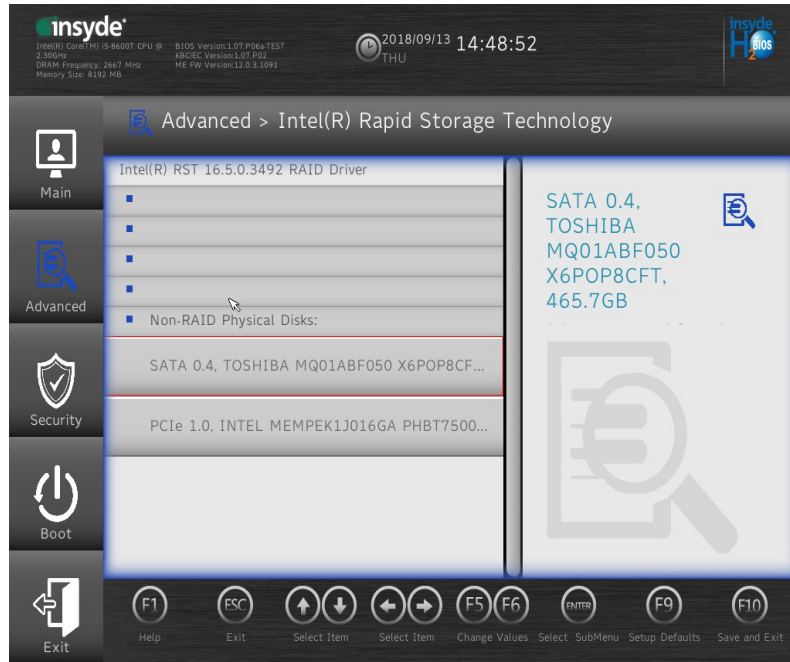


Figure 6 - 3
Intel(R) Rapid
Storage Technology

6

6 - 6 Setting Up SATA Mode (Optane™ or AHCI)

Mustang W640R Notebook

11. Select “**Save and Exit**”, however **ensure that the condition in the bulleted point below is met** before doing so.
 - Make sure the *Windows 10* OS DVD is in the DVD drive, as the computer starts up it will automatically boot from the *Windows 10* OS DVD (you will be prompted to press a key to boot from the DVD).
12. Press <F2> as the computer starts up and select **Boot Manager**.
13. Click to select the DVD drive containing the *Windows 10* OS DVD.
14. Press a key at system startup to begin installing *Windows* from your *Microsoft Windows 10* disc.
15. Click **Next > Install Now** to continue installing the operating system as normal (see your *Windows* documentation if you need help on installing the *Windows* OS).
16. Select **Custom: Install Windows only (advanced)**.
17. It is recommended that you select and then delete existing partitions.
18. Click **New** to create a partition for Windows.
19. **It is very important to make sure that when you create the partition, to leave at least a minimum of unallocated space of 5MB (see sidebar).**
20. Follow the on-screen instructions to install the *Windows 10* operating system.
21. Install the *Windows* drivers from the *Device Drivers & Utilities + User’s Manual* disc as per [Table 4 - 1, on page 4 - 4](#) (make sure you install the **Intel Rapid Storage Technology driver** - see overleaf).
22. Run the **Intel® Rapid Storage Technology** application to manage your **Intel® Optane™** system as instructed in [“Intel® Rapid Storage Technology for Optane Systems” on page 6 - 28](#).



Creating a Windows Partition for Optane

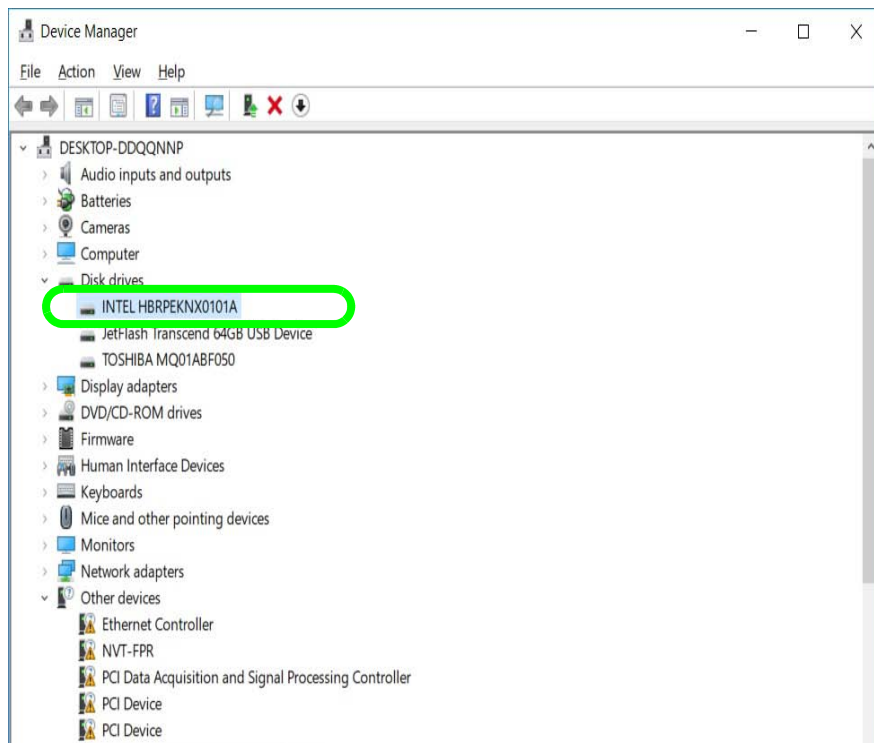
When installing *Windows*, make sure that you leave a minimum of 5MB of unallocated space for the Intel® Optane™ software to create needed metadata.

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

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

Modules & Options

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



6
Figure 6 - 4
Device Manager

6 - 8 Setting Up SATA Mode (Optane™ or AHCI)

Mustang W640R Notebook

Wireless LAN Module

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

Make sure that the module is on (i.e. the system is not in **Airplane Mode**) before installing the driver, and that you install the drivers in the order indicated in *Table 4 - 1, on page 4 - 4*.

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

Intel® WLAN Driver Installation

1. **Make sure the system is not in Airplane Mode**, and then insert the *Device Drivers & Utilities + User's Manual* disc into an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **1.Install WLAN Driver > Yes**.
4. Click in the check box to agree to the **End User License Agreement** and click **Install**.
5. Click **Finish**.
6. The operating system is the default setting for Wireless LAN control in *Windows* (see page *6 - 10*).




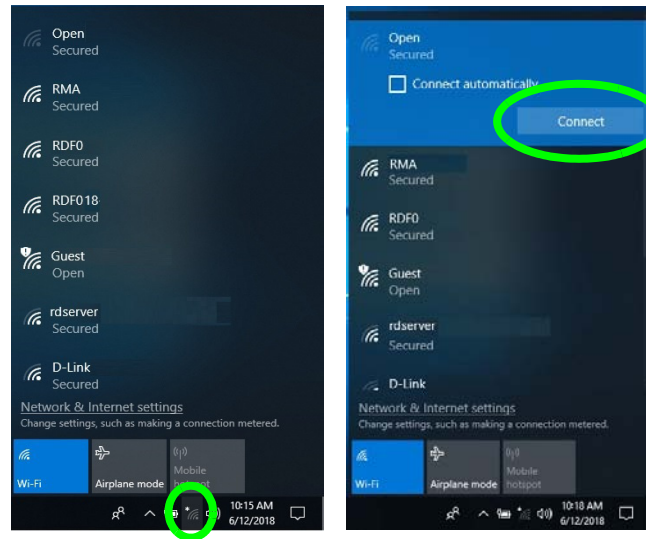
Wireless Device Operation Aboard Aircraft

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

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. A list of available access points will appear.
4. Double-click an access point to connect to it (or click it and click **Connect**).



6
Figure 6 - 5
WiFi & Network
Connections

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



Wireless Device Operation Aboard Aircraft

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

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

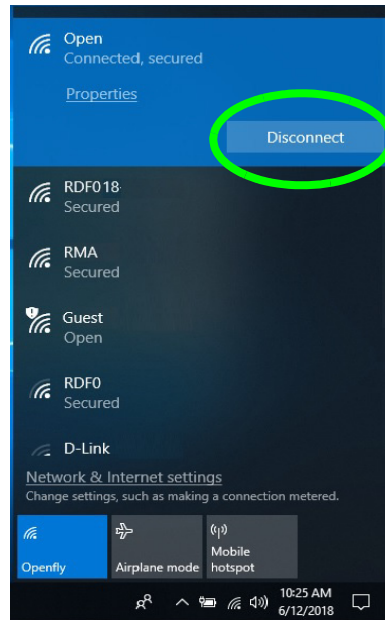
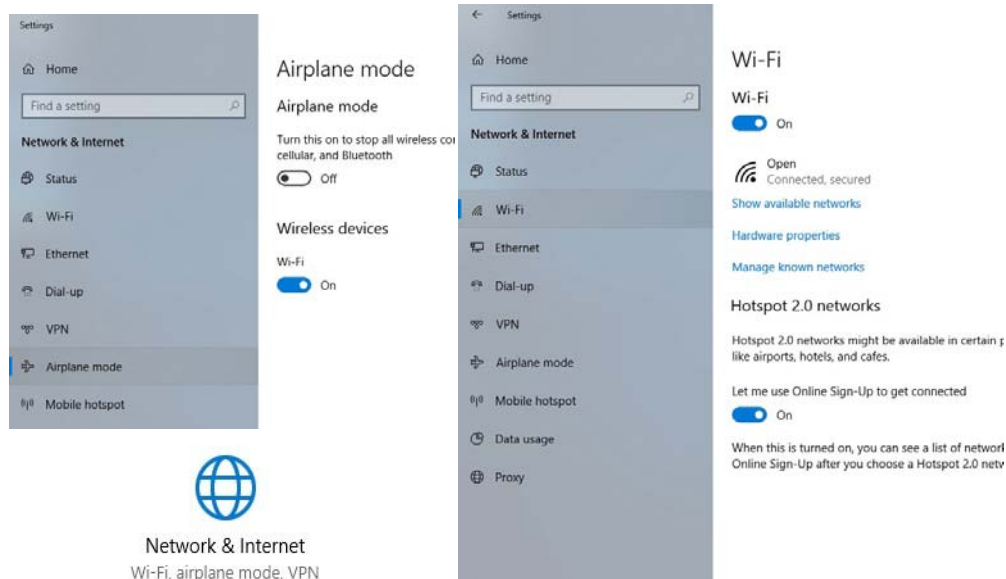


Figure 6 - 6
**Network Connected
(Click Disconnect)**

Modules & Options

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



6 - 12 Wireless LAN Module

Mustang W640R Notebook

Fingerprint Reader Module

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

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

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



Fingerprint Reader and Power Saving States

If your computer is in a power saving state (e.g. Hibernate or Sleep) you should keep your finger clear of the fingerprint sensor.

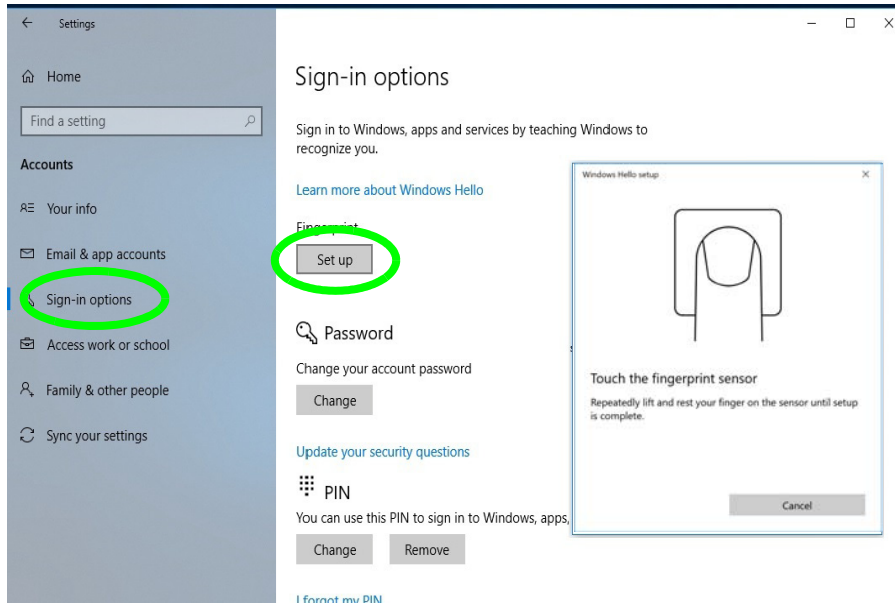
Allow the system to fully resume before swiping your finger across the sensor.


Fingerprint Reader Driver Installation

1. **Make sure the system is not in Airplane Mode**, and then insert the *Device Drivers & Utilities + User's Manual* disc into the DVD drive.
2. Click **Option Drivers**.
3. Click **2.Install Fingerprint Driver > Yes**.
4. Click **Next > Install**.
5. Click **Finish** to restart the computer.
6. The fingerprint reader module uses the **Sign-in options** configuration of the **Windows Account** (see overleaf).

Fingerprint Module Configuration

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




PIN Code

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

Note this code as it may be required to help you sign-in if there are any issues with using the fingerprint reader to sign-in (see *"Fingerprint Sign-In Issues"* on page 6 - 16).

Figure 6 - 8
Accounts - Sign-in options (Add Fingerprint)

Modules & Options

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

Figure 6 - 9
**Rest & Lift Your
Finger**



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



Fingerprint Sign-In Issues

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

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

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

Bluetooth Combo Module

If your purchase option includes the **Intel® 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, and that you install the drivers in the order indicated in *Table 4 - 1, on page 4 - 4*.

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



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.



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

Intel Bluetooth Combo Driver Installation

1. **Make sure the system is not in Airplane Mode**, and then insert the *Device Drivers & Utilities + User's Manual* disc into an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **3.Install Combo BT Driver > Yes**.
4. Click **Next**.
5. Click in the check box to accept the license and click **Next**.
6. Select the setup type (**Typical** is recommended) and click **Install**.
7. Click **Finish**.
8. See *“Bluetooth Configuration in Windows” on page 6 - 19* for configuration instructions.

Bluetooth Configuration in Windows

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

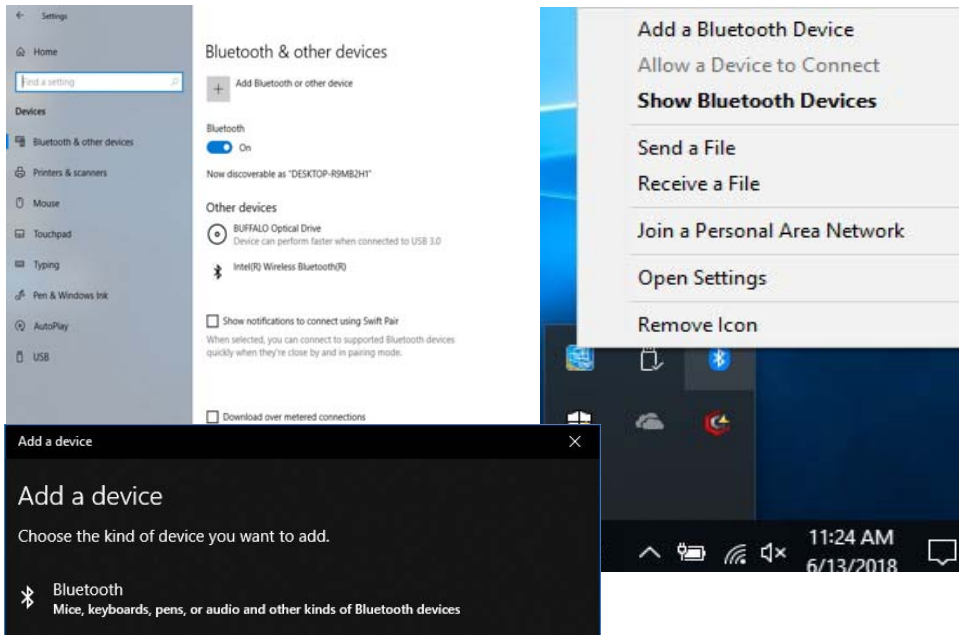


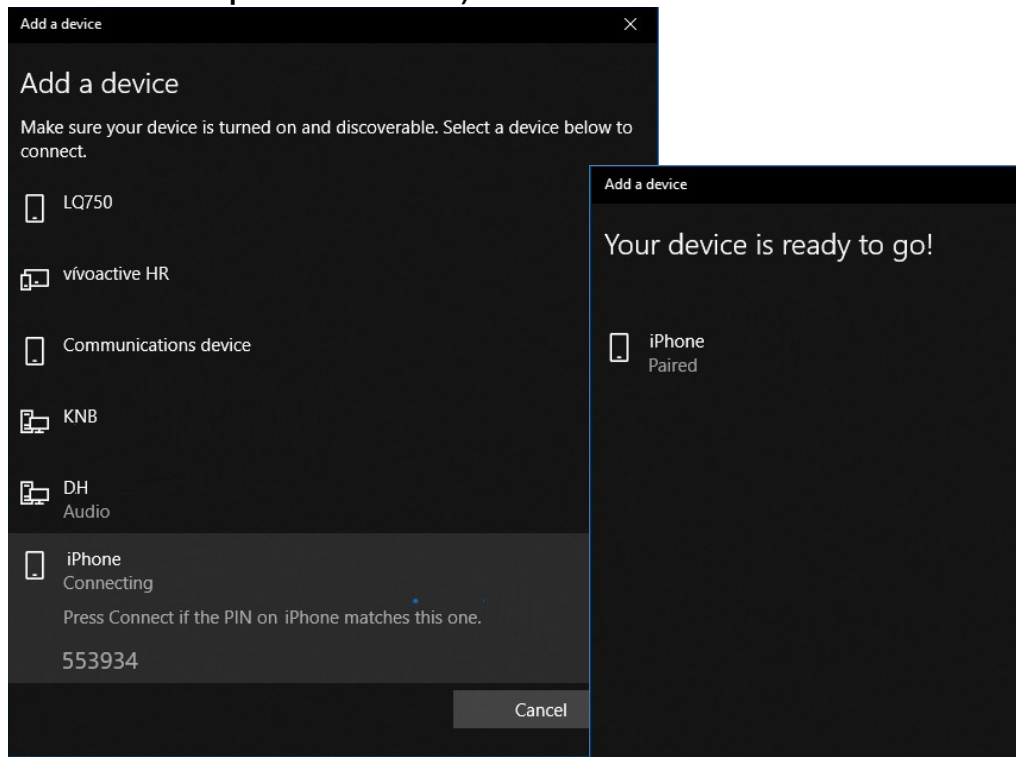
Figure 6 - 10
Settings > Bluetooth & Other Devices (Add a Bluetooth Device)

Figure 6 - 11
Add a Device

Modules & Options

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

Figure 6 - 12
Bluetooth Connect



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

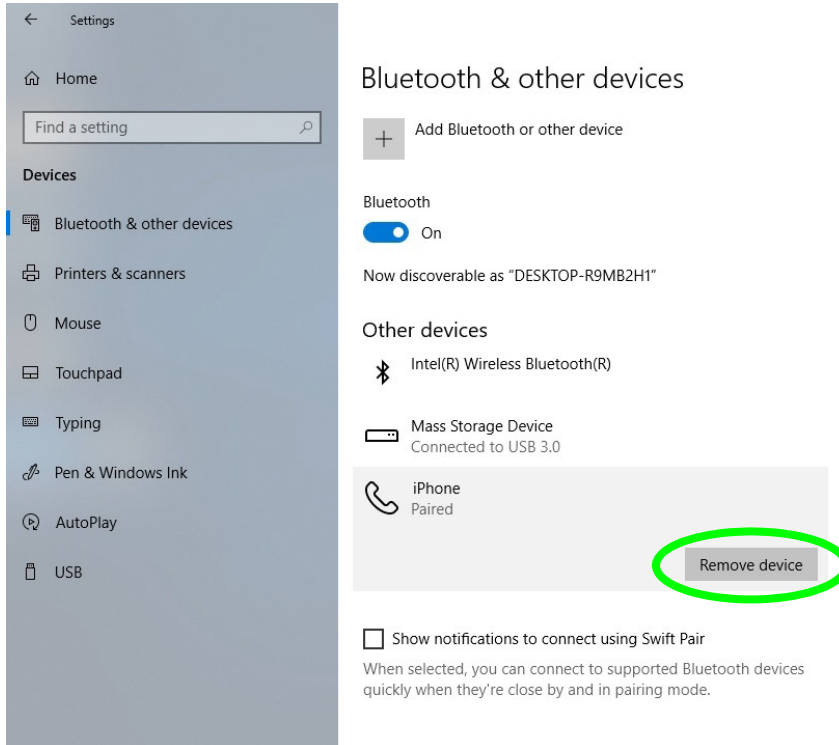

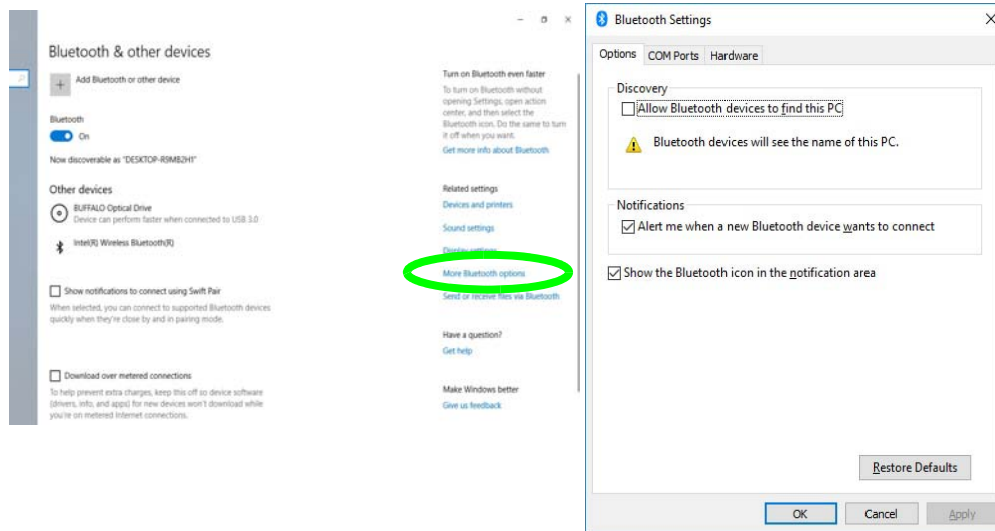


Figure 6 - 13
Bluetooth Remove Device

To Make your Computer Discoverable to Bluetooth Devices

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



6

Figure 6 - 14
Bluetooth Settings

Thunderbolt Port Driver

If you have included the **Thunderbolt 3 combo port (factory option)** in your purchase configuration then you need to install the driver.

Before installing the Thunderbolt driver it is necessary to initialize the port first. To do so simply insert any USB Type C device (e.g. a USB flash drive) into the combo port (see [Figure 1 - 13 on page 1 - 22](#)). You may then install the driver as below.

1. Insert the *Device Drivers & Utilities + User's Manual* disc into an attached DVD drive.
2. Click **Option Drivers** (button).
3. Click **4.Install Thunderbolt Driver > Yes**.
4. Click the check box to accept the license and then click **Install**.
5. Click **Finish**.
6. See also "[Intel\(R\) Thunderbolt Technology \(Advanced Menu > Intel\(R\) Thunderbolt\)](#)" [on page 5 - 12](#) for Thunderbolt port configuration in the BIOS.
7. See over for further information.



Thunderbolt Port Devices

If your purchase option includes a Thunderbolt port note the following:

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

Ejecting Thunderbolt Devices

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

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

Thunderbolt Port Security Level

The security level (including setting the port for display devices) for the Thunderbolt port can be set up in the BIOS (see "**Security Level (Advanced Menu > Intel(R) Thunderbolt)**" [on page 5 - 13](#)).

Thunderbolt™ Port Set for Display

If your purchase configuration includes the Thunderbolt™ combo port then the display configuration for the Thunderbolt™ port and Mini Display Port can be set up in the BIOS (see "**DDI Control (Advanced Menu > Advanced Chipset Control)**" [on page 5 - 11](#)). If the Thunderbolt™ port is enabled for display then the Mini Display Port #1 **4** ([Figure 1 - 13 on page 1 - 22](#)) will be turned off.

Intel® Software Guard Extensions

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

Intel SGX Driver Installation

Make sure you have enabled Software Guard Extensions from Advanced Chipset Control in the Advanced Menu in the BIOS before installing the driver (see “[SW Guard Extensions \(SGX\) - \(Advanced Menu > Advanced Chipset Control\)](#)” on page 5 - 14).

1. **Make sure the system is not in Airplane Mode**, and then insert the *Device Drivers & Utilities + User’s Manual* disc into the DVD drive.
2. Click **Option Drivers**.
3. Click **5.Install Intel SGX Driver > Yes**.
4. Click **OK > OK** to complete the installation.



*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® 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. **Intel® Speed Shift Technology can be enabled/disabled in the BIOS** (see "*Intel(R) Speed Shift Technology (Advanced Menu > Advanced Chipset Control)*" on page 5 - 13).

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 **6.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.

Intel® Rapid Storage Technology

Install the **Intel® Rapid Storage Technology** to support your AHCI mode SATA drive (see “*SATA Mode (Advanced Menu)*” on page 5 - 15).

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 **7.Install IRST Driver > Yes**.
4. Click **Next > Next**.
5. Click in the check box to accept the license, and then click **Next**.
6. Click **Next > Next > Next**.
7. Click **Finish** to restart the computer.
8. Run the **Intel® Rapid Storage Technology** app from the **Apps** screen.

See the following pages for more information if you have set your system for **Intel® Optane™** (see page 6 - 28) configuration.

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



IRST and M.2 PCI-e SSDs

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

Optane SSD Module Removal

If you need to remove an installed Optane SSD module for any reason, **you must disable** (see “*Disabling Intel® Optane™*” on page 6 - 33) Intel Optane before doing so.

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



Optane SSD Module Removal

If you need to remove an installed Optane SSD module for any reason, you must disable (see “Disabling Intel® Optane™” on page 6 - 33) Intel Optane before doing so.

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

Intel® Rapid Storage Technology for Optane Systems

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

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

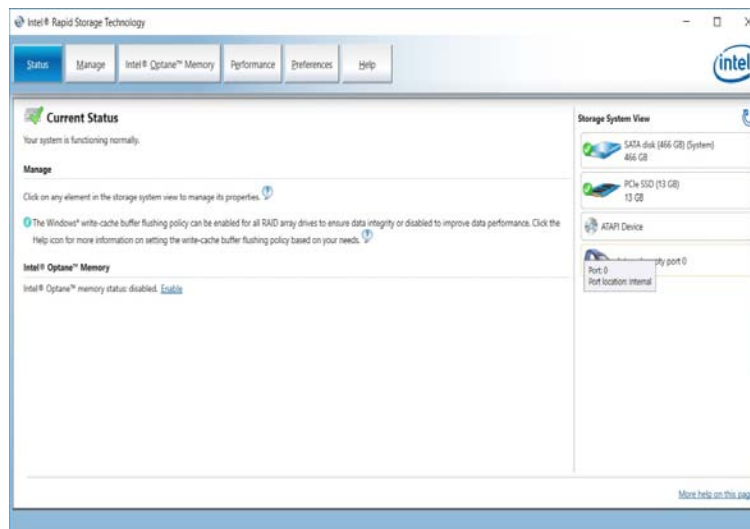


Figure 6 - 15
Intel® Rapid
Storage Technology
Status

Enabling Intel® Optane™

1. Run the **Intel® Rapid Storage Technology** application.
2. Click **Enable**.



3. The system will pop-up a message and ask you to select a compatible fast drive (in this case there should only be one option).

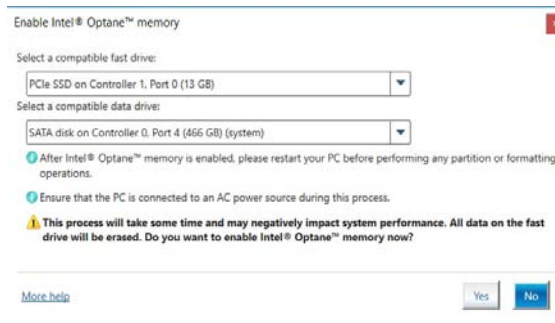


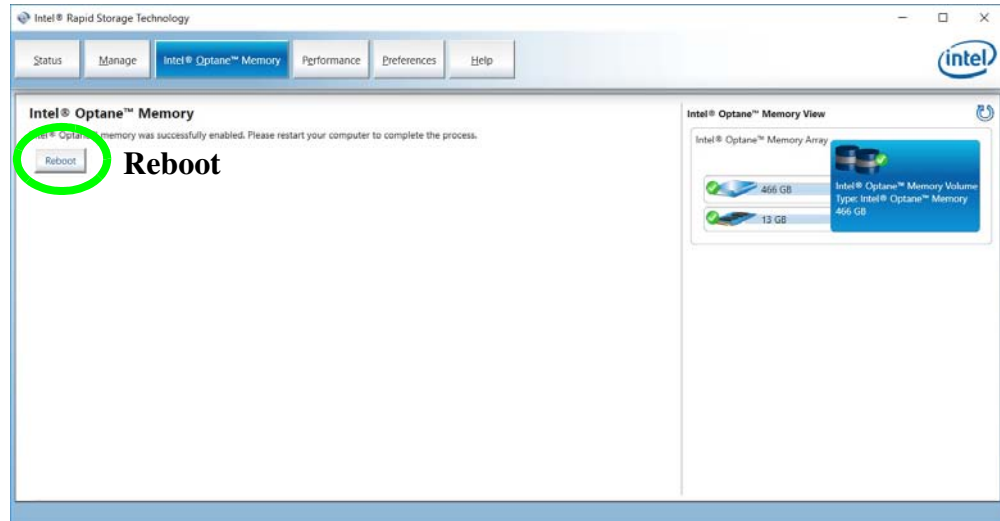
Figure 6 - 16
IRST - Intel®
Optane™ Memory
(Enable)

Figure 6 - 17
IRST - Intel®
Enable Optane™
Memory

Modules & Options

4. You will need to restart the computer after enabling **Optane**, and make sure the system is powered by the powered AC/DC adapter, and not by battery only.
5. Click **Yes** to begin the process (this may take some time).
6. You can click the **Intel Optane Memory** tab in the IRST control panel and click **Reboot** to restart the computer, or simply after the process has been completed restart the computer.

Figure 6 - 18
**IRST - Intel®
Memory - Reboot**



7. After restarting can access **Device Manager** (right-click the **Start** menu and select **Device Manager**).
8. Click **Disk drives** to check that the drive should read **Intel Optane *******.

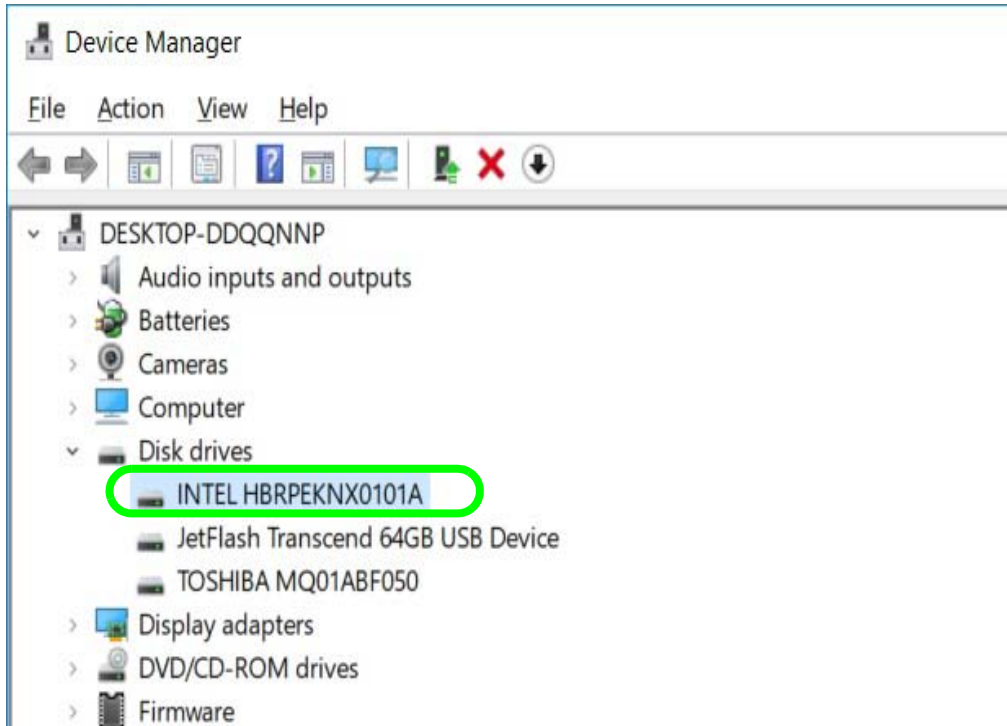


Figure 6 - 19
Device Manager
(Disk drives)

Modules & Options

9. Run the **Intel® Rapid Storage Technology** application to check the status.

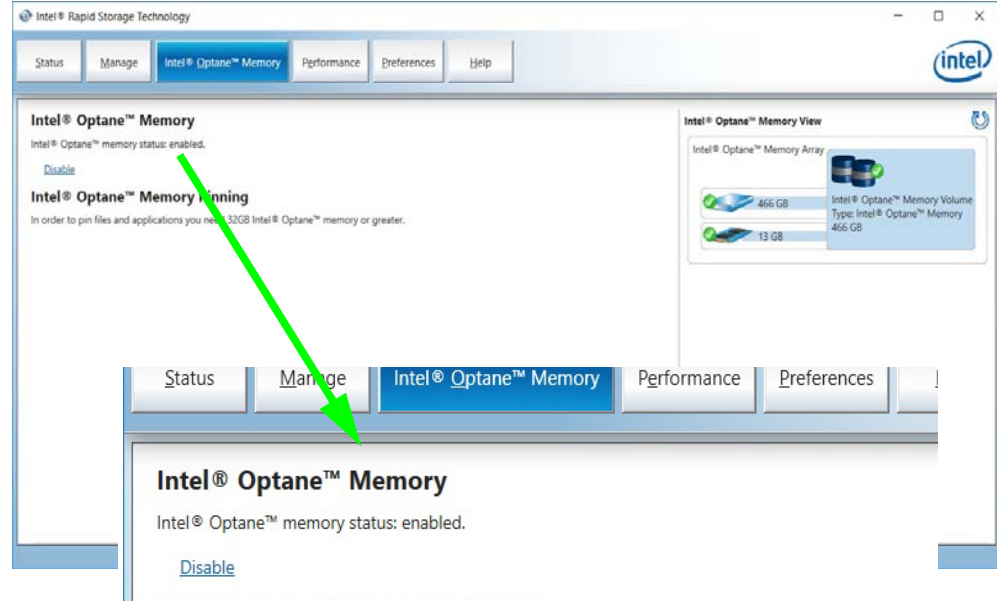


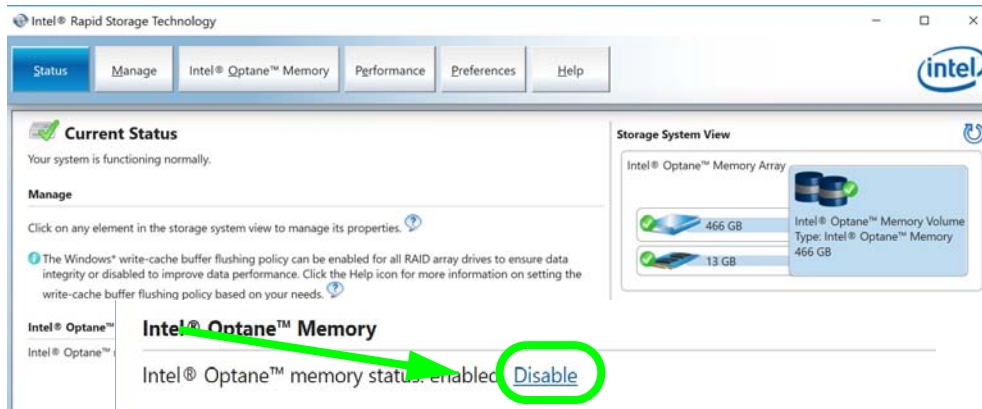
Figure 6 - 20
IRST - Intel®
Optane™ Memory
(Enabled)

6

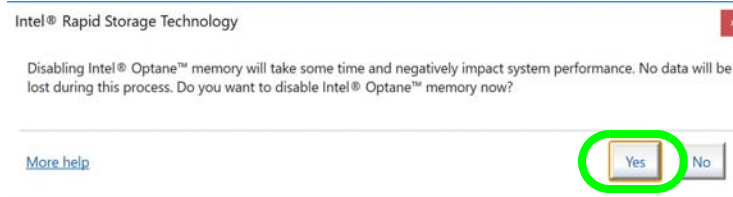
Disabling Intel® Optane™

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

1. Run the **Intel® Rapid Storage Technology** application.
2. Click **Disable**.



3. Click **Yes** when the message pops up.




Disabling Intel® Optane™

Disable Intel® Optane™ if you want to reinstall/reset the system, remove the Optane SSD or update the IRST driver.

6

Figure 6 - 21
IRST - Intel® Optane™ Memory (Disable)

Figure 6 - 22
IRST - Yes to Disable

Modules & Options



HDDs & Intel® Optane™ SSDs

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

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

4. Restart the computer to complete the process.
5. Run the **Intel® Rapid Storage Technology** application.
6. The **Status** of **Intel® Optane™ Memory** is indicated in the Window.
7. To enable **Intel® Optane™ Memory** follow the process indicated in **“Enabling Intel® Optane™” on page 6 - 29.**

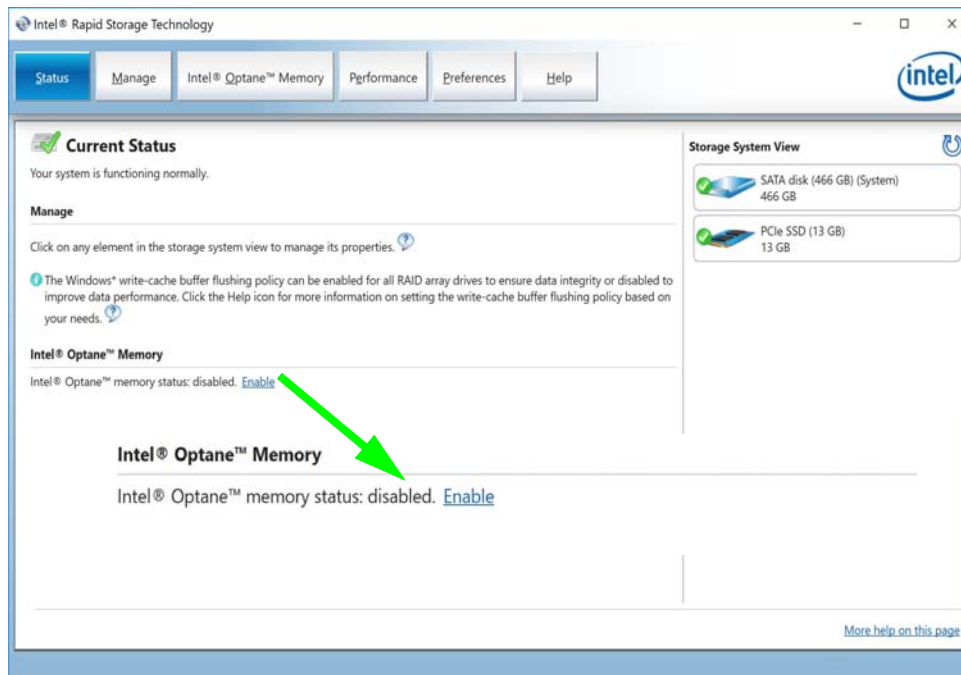


Figure 6 - 23
IRST - Intel® Optane™ Memory (Status)

8. Restart your notebook computer and press <F2> to enter the BIOS.
9. Go to the **Advanced** menu and you will now see the **Intel(R) Rapid Storage Technology (Advanced menu) item**. You can and press <Enter> to check the information.

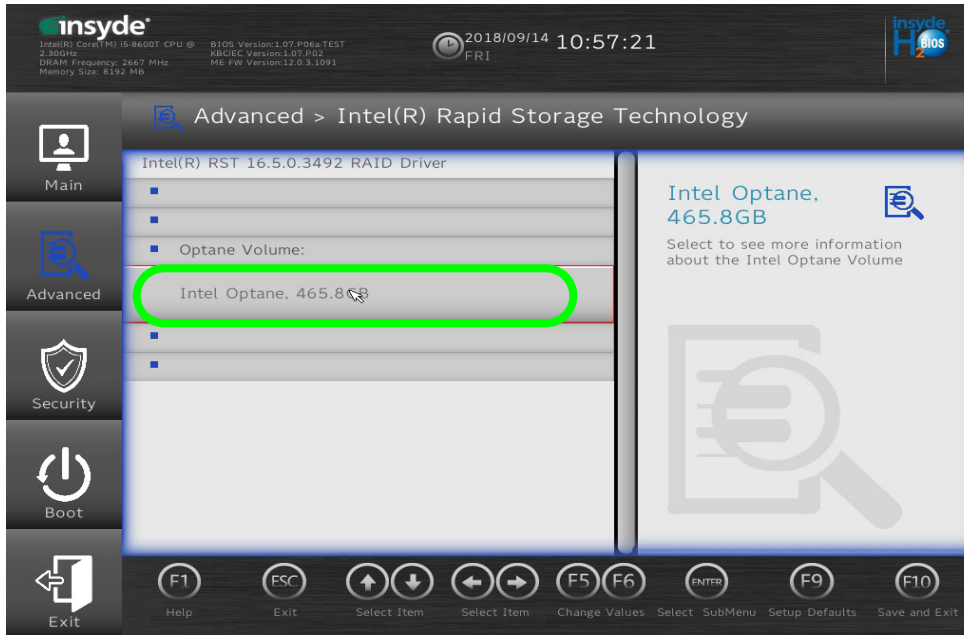


Figure 6 - 24
Intel(R) Rapid Storage Technology (Optane)

10. Click on Intel **Optane *******.

Modules & Options

11. Click **Disable**.

Figure 6 - 25
**Intel(R) Rapid
Storage Technology
(Disable Optane)**



12. You can click to either Enable or Disable **“Preserve user data.”**
13. Click on **“Are you sure you want to disable?”** and select **Yes**.

Figure 6 - 26
**Intel(R) Rapid
Storage Technology
(Preserve User
Data)**



14. Select **“Save and Exit”**.
15. If you re-enable Optane in the Intel Rapid Storage Technology control panel then it will also be re-enabled in the BIOS.

Intel® vPro™ Technology

Intel® vPro™ Technology is supported by Model A computers only. This set of technology features, built into the computer's motherboard, allows Information Technology departments remote access to the computer. This allows the IT department to monitor, maintain and manage computers regardless of the state of the operating system or the computer's power state. This can be done over a wired or corporate wireless network, or even outside the corporate firewall through a wired LAN connection.

Accessing the Intel Management Engine

To access the **Intel Management Engine** press **Ctrl + P** at startup. Your system administrator will need to assist you in managing the information as applicable to your enterprise. Note the following password information for the Intel Management Engine:

- The default password is “**admin**” (without quotes).

If you get an "**Error - Intel(R) ME password change rejected**" message when creating a new password, then note the following parameters for creating a password:

- between 8 and 32 characters long
- Contain both upper and lower case Latin characters
- Have at least one numeric character
- Have at least one ASCII non-alphanumeric character (!, @, #, \$, %, ^, &, *)



Wake On LAN From G3 Power-Saving States

Only Model A computers, which support Intel® vPro™ Technology, can resume from network activity (Wake On LAN) from a G3 (mechanical off) power-saving state.

A G3 (mechanical off) power-saving state is when the power is completely removed from the system e.g. the system is unplugged or power is turned off at a power strip.

Figure 6 - 27
**Intel(R) Management
Engine
(Password Creation)**



Select **MEBx Login** and press “Enter” to access the password screen. Enter the password “**admin**” (without quotes) and you will then be prompted to enter your own password (note the password information on the previous page). Once you have entered the password you will then be taken to the platform configuration screen.

The platform configuration screen allows you to setup Intel ME as per your requirements (consult your IT administrator for the actual settings required). Access the **Intel® Management and Security Status** control panels from the **Apps** screen. These features allow users and IT Administrators to enhance and protect computing assets. Your system administrator will need to assist you in managing some of the information here.

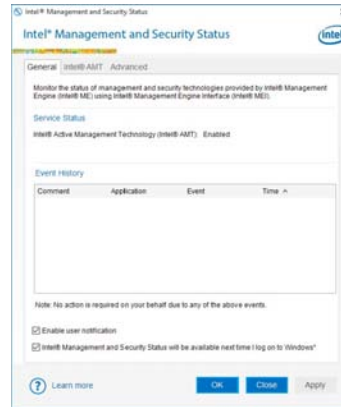
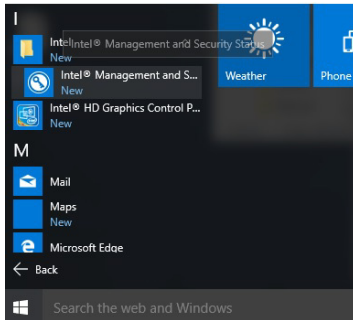
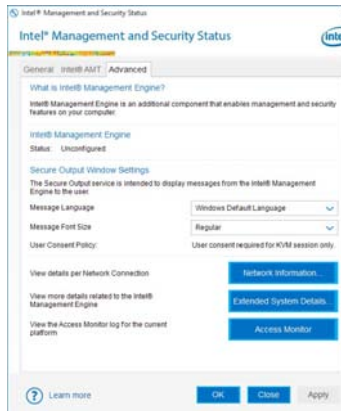
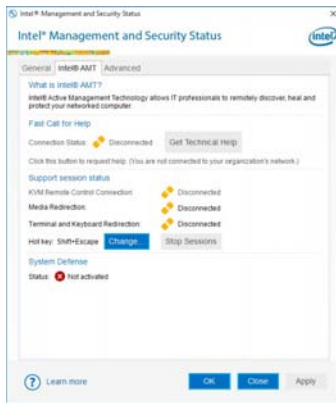


Figure 6 - 28
Intel® Management and Security Status






Help

Click **Learn More** to and then click **For more information** refer to the user guide.

PC Camera Module

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

Camera App

1. Make sure the PC Camera is turned on by using the **Fn + F10** key combination (or **Control Center button**).
2. Run the Camera app from the Start menu by clicking on the **Camera app icon**  (you can type “camera” into the search box to find the Camera app).
3. The interface displays two buttons on the right of the screen; one for photo and one for video.

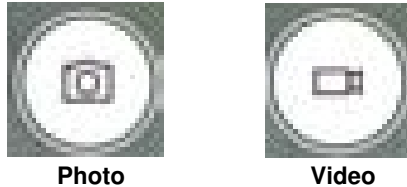


Figure 6 - 29
Camera App Mode Icons

4. Simply click on the appropriate button to switch to either photo or video modes.
5. You can use the buttons at the top of the screen to access the **Settings** and **Auto Pro** menus (for **Self Timer** or **Exposure compensation**).

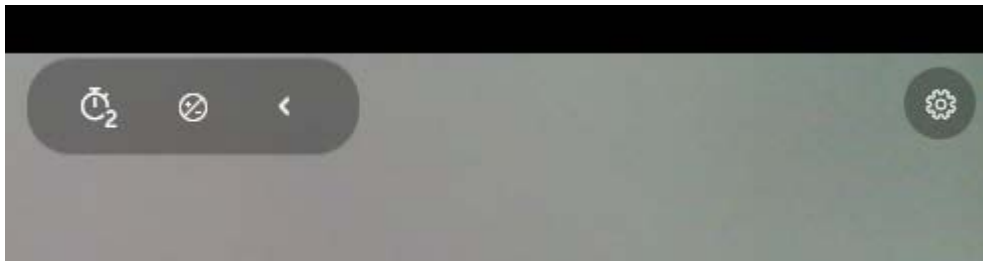


Figure 6 - 30
Camera Menu Buttons

- Click **Settings**  to access the camera settings menu to make adjustments for **Camera press and hold button**, photo **Aspect ratio**, **Framing grid**, Time lapse, video recording frame rates and **Flicker reduction**.

Figure 6 - 31
Camera Settings



Camera Settings

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

The **Aspect Ratio** can be changed to those the system supports. You can use a **Framing grid** to help you line up pictures.

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

The **Video recording** resolution and frame rate can be set to any supported by the system. Note that capturing high resolution video files requires a substantial amount of disk space for each file. After recording video, check the video file size (right-click the file and select Properties) and the remaining free space on your hard disk (go to File Explorer, right-click the hard disk, and select Properties). If necessary you can remove the recorded video file to a removable medium e.g. CD, DVD or USB Flash drive.

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

7. With the Pro menu expanded you can access the **Exposure compensation** button to adjust the brightness.

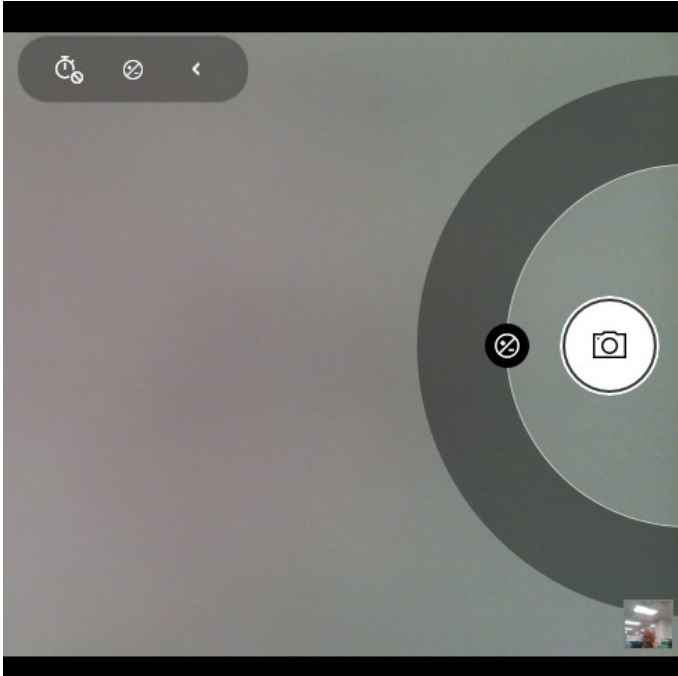








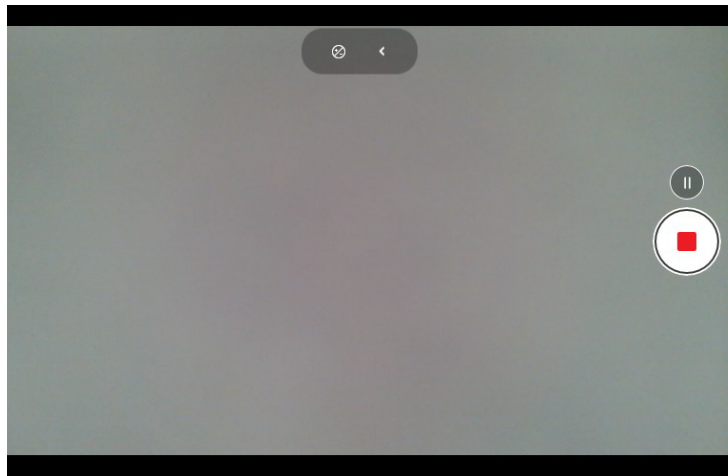
Figure 6 - 32
**Camera Brightness
Adjustment**

Taking Pictures/Capturing Video

1. Make sure the PC Camera is turned on by using the **Fn + F10** key combination (or **Control Center button**).
2. Run the Camera app from the Start menu by clicking on the **Camera** app icon  (you can type “camera” into the search box to find the Camera app).
3. Click to select either **photo**  or **video**  modes.
4. Click the photo icon to take a picture.
5. Click on the video icon  to start video capture (when video capture begins a timer will appear at the bottom of the screen).
6. To stop video capture click the stop  button (you can also pause  the video capture).

6

Figure 6 - 33
**Video Camera
Recording in
Process**



- 7. Captured photos and videos will be saved to the **Photos** app stored in the Start menu (type **Photos** into the search box if you cannot find the app). You can also access the photos from the **Camera roll** icon at the bottom right of the Camera app screen.

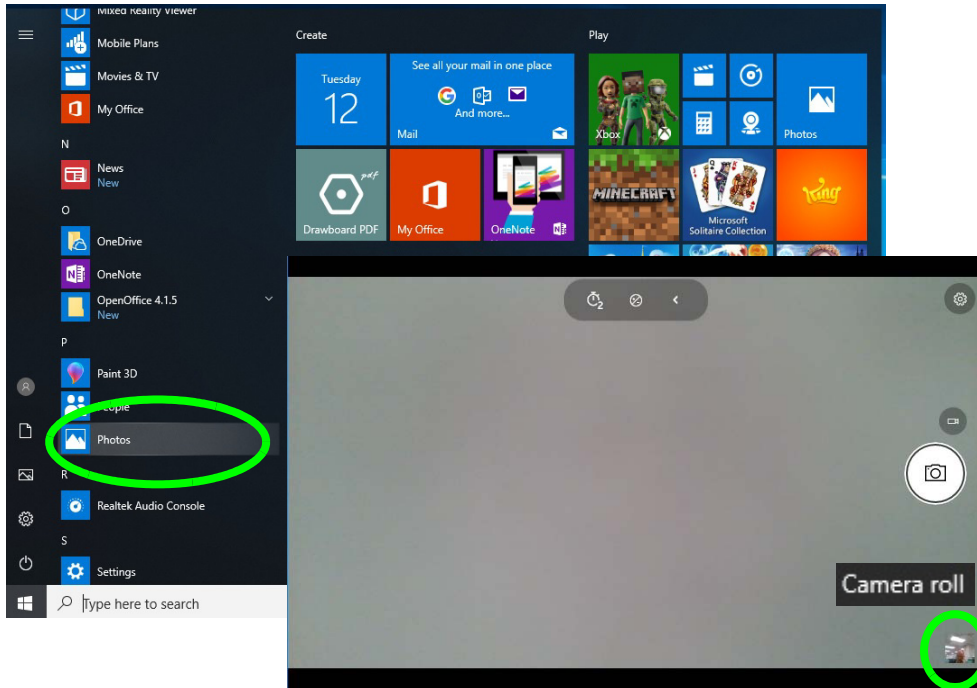


Figure 6 - 34
Photos App
(For Captured
Photos & Videos)
&
Camera Roll in the
Camera App

Trusted Platform Module

(Optional)

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

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 enable and initialize the security platform.

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.



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.

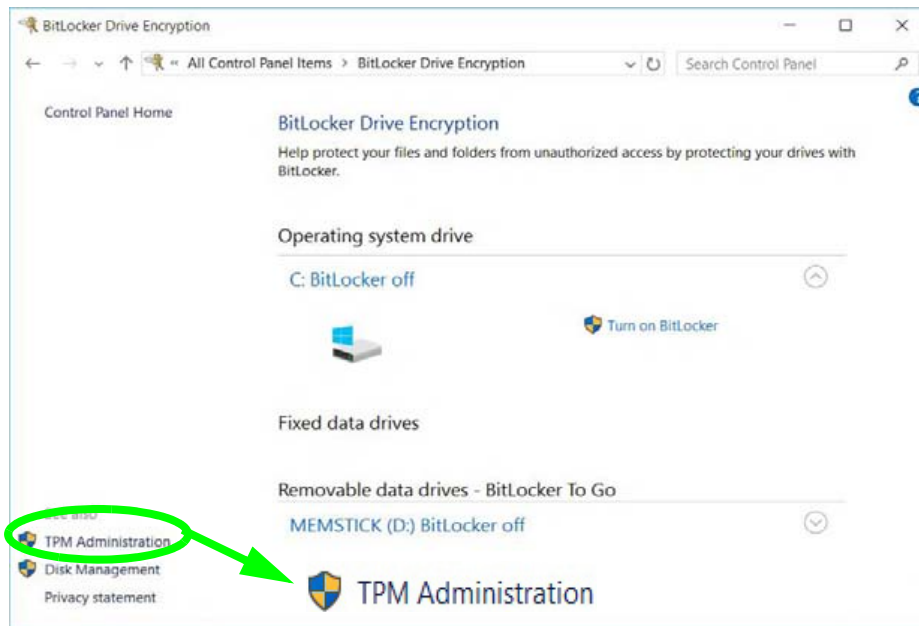
Figure 6 - 35
Security - Trusted Computing

TPM Management in Windows

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

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

Figure 6 - 36
BitLocker Drive Encryption (TPM Administration)



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

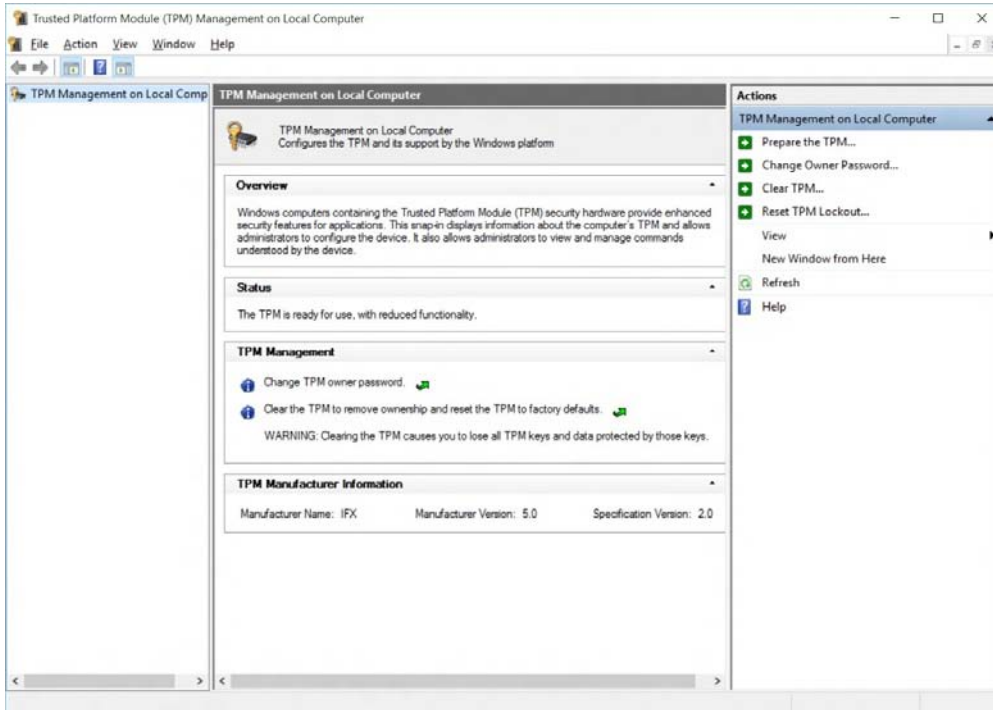


Figure 6 - 37
Trusted Platform Module (TPM) Management on Local Computer Administration

TPM Actions

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

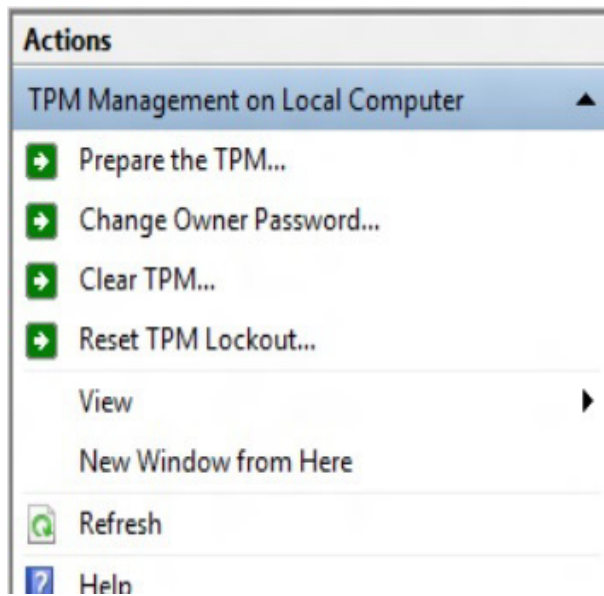


Figure 6 - 38
TPM Actions Menu

BitLocker

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

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

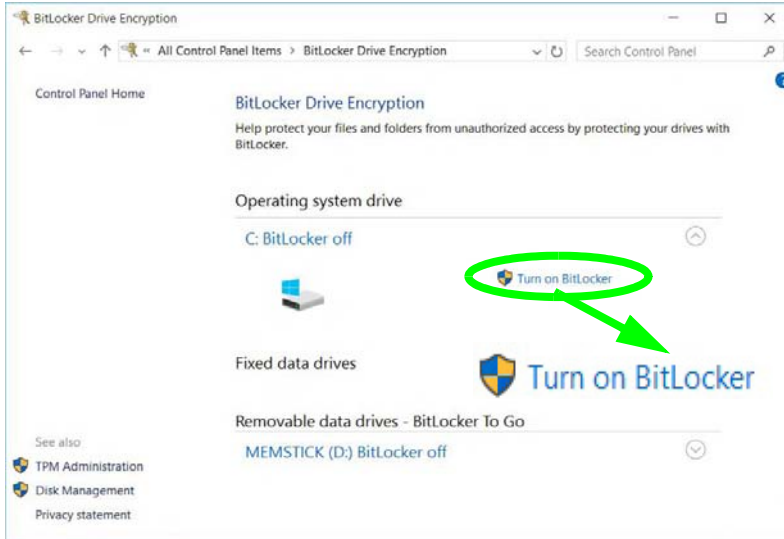


Figure 6 - 39
BitLocker Drive
Encryption



Wireless Device Operation Aboard Aircraft

The use of any portable electronic transmission devices aboard aircraft is usually prohibited. Make sure the **3G/4G/WLAN/Bluetooth** module(s) are OFF if you are using the computer aboard aircraft. Use **Airplane Mode** hot key to toggle Airplane Mode On/Off, and check the LED indicator for the power status.

3G/4G Module

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



Important Notice

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

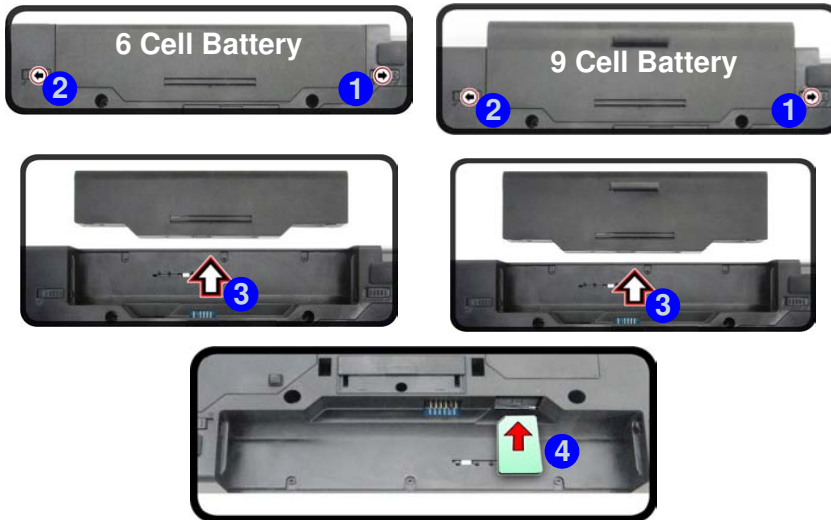
Important Notice - 3G/4G & Bluetooth/Wireless LAN Modules

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

3G/4G Module USIM Card Installation

Follow the instructions below to install the USIM card (which will be supplied by your service provider).

1. Turn **off** the computer, and turn it over and then remove the battery (slide latch **1** in the direction indicated below, then slide hold latch **2** in place and slide the battery out in the direction of arrow **3**).
2. Insert the USIM card **4** into the slot at the rear of the battery compartment, as illustrated below, until it clicks fully into position, and then replace the battery (see over).



Power Safety Warning

Before you undertake any installation procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

USIM Card Orientation

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

Figure 6 - 40
Battery Removal



USIM Card Ejection

Simply press on the USIM card to eject it, however do not do this while a connection is in progress.

If you do eject the card while a 3G/4G connection is ongoing, you will need to shut down the system, reinsert the USIM card, restart the system and then reestablish the 3G/4G connection.

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

Inserting the Battery

1. Turn the computer **off**, and turn it over.
2. Slide the battery into the compartment in the direction of the arrow **1**.
3. Slide the latches **2** and **3** in the direction of the arrows to lock the battery



Figure 6 - 41
Battery Insertion

4G Configuration

You can configure a 4G connection as below, however make sure the **system is not in Airplane Mode** before configuration begins and **turn Wi-Fi Off in order to use your 4G connection as priority**. You can connect to a 4G connection in much the same way as the WLAN connection except you use the **Cellular** menu.

1. Click the Wireless icon in the notification area of the taskbar and click on the Wi-Fi icon in order to turn it off (the Wi-Fi icon will be grayed out when off).

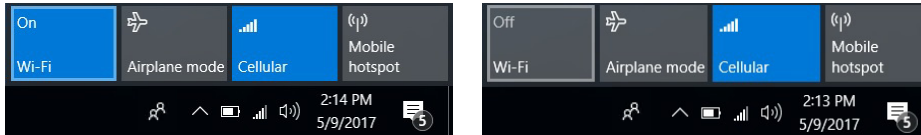


Figure 6 - 42
Wi-Fi Menu with
Wi-Fi On & Off

2. Make sure that **Airplane mode is off** (the Airplane mode icon should be gray).
3. Click the **Cellular** button to turn it On.

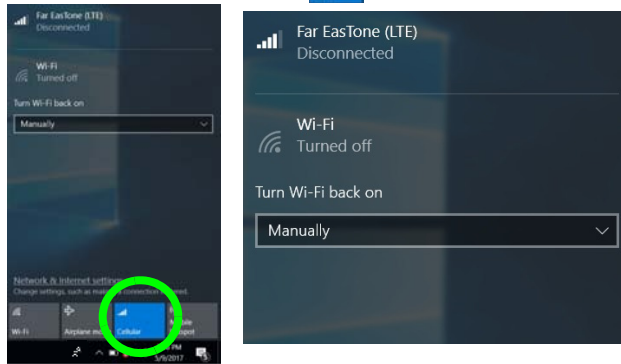


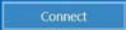

Figure 6 - 43
Cellular Menu
(Disconnected)

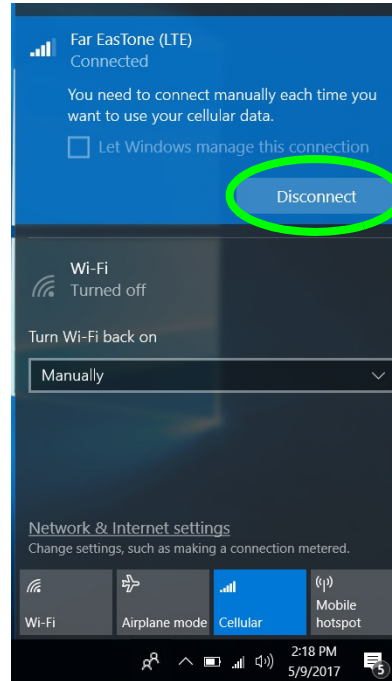
Modules & Options



Power Saving States & Cellular Connections

Note that if your system goes in to a power saving state, you will need to reconnect to your cellular network when the system resumes.

4. Click **Connect** to connect  to the cellular network manually.
5. Once connected you can then access the internet, download e-mail etc. as per any internet connection.
6. Click **Disconnect**  to drop the connection to the cellular network.
7. You will need to turn your Wi-Fi on again after disconnecting.



6

Figure 6 - 44
Cellular Connection

8. **Cellular** in **Network & Internet** in **Windows Settings** will allow you to access some further cellular settings.

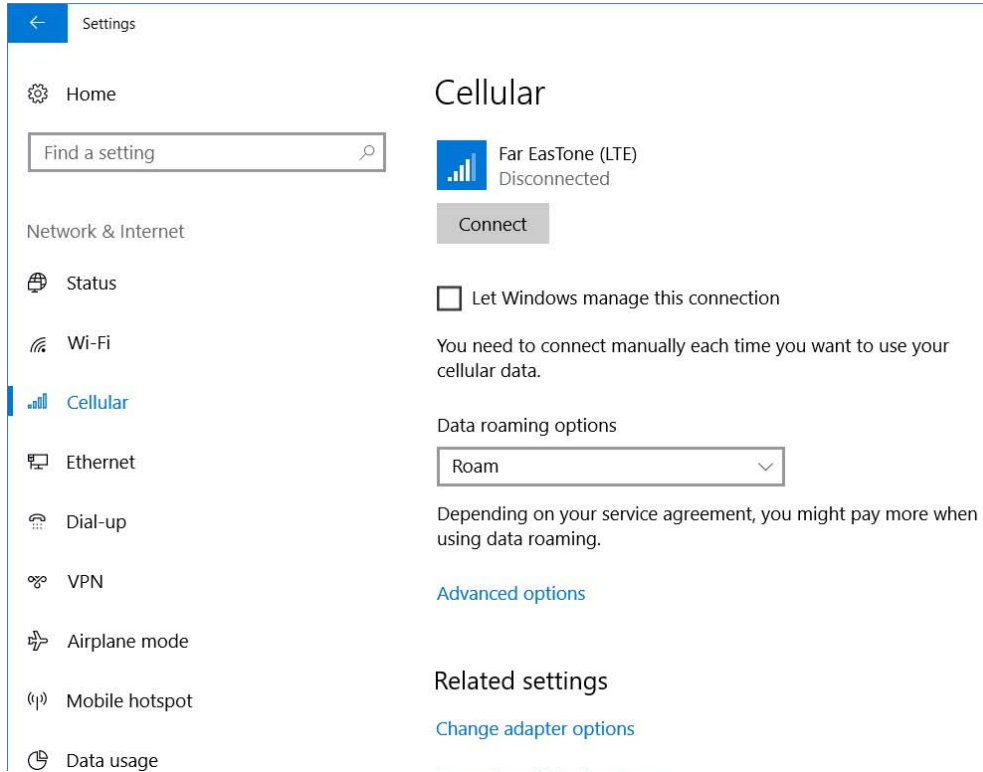
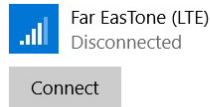


Figure 6 - 45
Network & Internet
Settings > Cellular

Modules & Options

9. Click **Advanced options** to access more detailed menu options.



Let Windows manage this connection

You need to connect manually each time you want to use your cellular data.

Data roaming options

Roam

Depending on your service agreement, you might pay more when using data roaming.

[Advanced options](#)

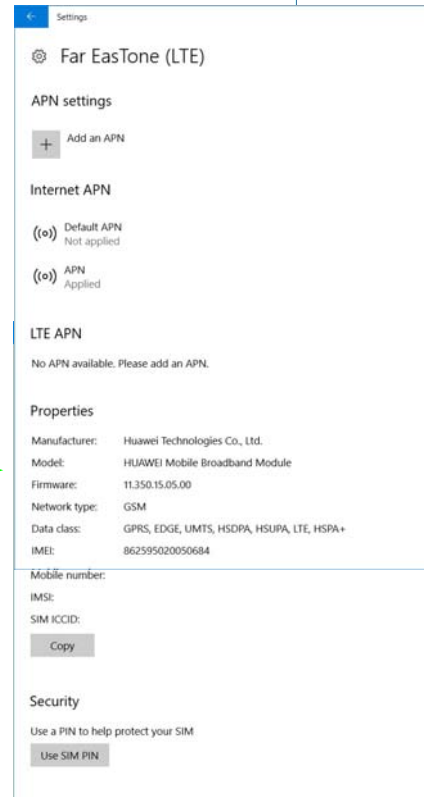
Related settings

[Change adapter options](#)

[Network and Sharing Center](#)

[Windows Firewall](#)

[Learn more](#)



6

Figure 6 - 46
Cellular > Advanced Options

Spare Parts Availability

Overview

The unit shall have spare parts during the entire 3 year warranty period and for 2 years after the end of life notice on the system. Spare parts offered for the unit that are system specific are as follows:

ITEM	DESCRIPTION	RETAIL	
ACA-6065	NP6065 65W AC ADAPTER WITH POWER CORD	\$	125.00
ACA-6120	NP6120 120W AC ADAPTER WITH POWER CORD	\$	195.00
ACA-6150	NP6150 150W AC ADAPTER WITH POWER CORD	\$	195.00
BAT-6062	NP6062 SMART Lithium-Ion BATTERY PACK (6 CELLS 62 WH)	\$	215.00
BAT-6093	NP6093 SMART Lithium-Ion BATTERY PACK (8 CELLS 93 WH)	\$	279.00
DOC-W640R	DKW640R Smart Docking Station with 90W AC ADAPTER WITH POWER CORD	\$	295.00
** ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE **			

These parts shall be found with current pricing on the Ace Computers website for the Mustang Series Notebooks at <http://www.acecomputers.com/Product-Mustang.asp>. See the button for the Mustang W640R Buyer's Guide which has spare parts for these system specific items and other items like memory, storage and other items.

Chapter 7: Troubleshooting

Overview

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

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

Basic Hints and Tips

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

- **Power** - Is the computer actually plugged into a working electrical outlet? If plugged into a **power strip**, make sure it is actually working. Check the **LED Indicators** (see *“LED Indicators” on page 1 - 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 the keys configured in your *Power Options* (see *“Power-Saving States” on page 3 - 7*), the **Fn + F4** key combination, or power button to wake-up the system.
- **Brightness** - Check the brightness of the screen by pressing the **Fn + F8 and F9** keys to adjust the brightness.
- **Display Choice** - Press **Fn + F7** to make sure the system is not set to “external only” display.
- **Boot Drive** - Make sure there are no **optical media and/or USB storage devices** in any connected drive.

Backup and General Maintenance

- Always **backup** your important data, and keep copies of your OS and programs safe, but close to hand. Don't forget to note the **serial numbers** if you are storing them out of their original cases, e.g. in a CD wallet.
- Run **maintenance programs** on your hard disk and OS as often as you can. You may schedule these programs to run at times when you are not using your computer. You can use those that are provided free with your OS, or buy the more powerful dedicated programs to do so.
- Write down your passwords and keep them safe (away from your computer). This is especially important if you choose to use a **Supervisor** password for the BIOS (see *“The Insyde BIOS Utility” on page 5 - 2*).
- 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
<p>You turned on the power but it doesn't work.</p>	<p><i>Battery missing / incorrectly installed.</i> Check the battery bay, make sure the battery is present and seated properly (the design of the battery only allows it to go in one way). Make sure there's nothing interfering with the battery contacts.</p>
<p>The battery LED power indicator , is blinking orange.</p>	<p><i>Low Battery.</i> Plug in the DC power source. If the computer doesn't start up immediately, turn it off then on again.</p>
<p>You are losing battery power too quickly.</p>	<p><i>The system is using too much power.</i> If your OS has a <i>Power Options</i> scheme (see "Power Plans" on page 3 - 5) check its settings. You may also be using a USB device/external device that is drawing a lot of power.</p>
<p>Actual battery operating time is shorter than expected.</p>	<p><i>The battery has not been fully discharged before being recharged.</i> Make sure the battery is fully discharged and recharge it completely before reusing (see "Battery Information" on page 3 - 16).</p> <p><i>Power Options have been disabled.</i> Go to the Control Panel in <i>Windows</i> and re-enable the options.</p> <p><i>A peripheral device/USB device is consuming a lot of power.</i> Turn off/remove the unused device to save power.</p>

Troubleshooting

Problem	Possible Cause - Solution
The computer feels too hot .	<p>Make sure the computer is properly ventilated and the Vent/Fan intakes are not blocked. If this doesn't cool it down, put the system into Hibernate mode or turn it off for an hour. Make sure the computer isn't sitting on a thermal surface (see "Overheating" on page 1 - 18). Make sure you're using the correct adapter.</p> <p>Make sure that your notebook is completely powered off before putting it into a travel bag (or any such container). Putting a notebook which is powered on in a travel bag may cause the Vent/Fan intakes to be blocked.</p>
The system will not wake up from a power saving state (Sleep/Hibernate) on network activity (Wake on LAN) even though I have plugged in the powered AC/DC adapter.	<p><i>Wake on LAN is supported in AC mode only.</i></p> <p>When the system enters a power saving state the plugged in AC/DC adapter should be connected, and should remain connected, in order to allow the system to wake up on network activity. Unplugging the adapter, and then plugging it back in again, will not allow the system to wake up on network activity.</p>
Nothing appears on screen.	<p><i>The system is in a power saving mode.</i> Toggle the sleep/resume key combination, Fn + F4 (see "Configuring the Power Buttons" on page 3 - 9).</p> <p><i>The screen controls need to be adjusted.</i> Toggle the screen control key combinations Fn + F8/F9. If you're connected to an external monitor, make sure it's plugged in and turned on. You should also check the monitor's own brightness and contrast controls.</p> <p><i>The computer is set for a different display.</i> Toggle the screen display key combination, Fn + F7. If an external monitor is connected, turn it on.</p> <p><i>The screen saver is activated.</i> Press any key or touch the Touchpad.</p>

Problem	Possible Cause - Solution
No image appears on the external monitor I have plugged in and powered on.	<i>You haven't installed the video driver and configured it appropriately from the Control Panel. See Appendix C for instructions on installing and configuring the video driver.</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>
 <p>Password Warning</p> <p>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.</p>	
The CD/DVD cannot be read .	<i>The CD/DVD is dirty. Clean it with a CD/DVD cleaner kit.</i>
The CD/DVD tray will not open when there is a disc in the tray.	<i>The CD/DVD is not correctly placed in the tray. Gently try to remove the disc using the eject hole (see “Loading Discs” on page 2 - 3).</i>
The DVD regional codes can no longer be changed.	<i>The code has been changed the maximum 5 times. See “DVD Regional Codes” on page 2 - 5.</i>
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 taskbar, or use the key combination Fn + F5 and F6 (see “Function/Hot Key Indicators” on page 1 - 11) to adjust.</i>

Troubleshooting

Problem	Possible Cause - Solution
Unwelcome numbers appear when typing.	If the LED  is lit, then Num Lock is turned ON . (see “LED Indicators” on page 1 - 7).
 Other Keyboards If your keyboard is damaged or you just want to make a change, you can use any standard USB keyboard. The system will detect and enable it automatically. However special functions/hot keys unique to the system’s regular keyboard may not work.	
The system freezes or the screen goes dark.	<i>The system’s power saving features have timed-out.</i> Use the AC/DC adapter, press the sleep (Fn + F4) key combination, or press the power button if no LEDs are lit.
The system never goes into a power saving mode .	Power Options features are not enabled. Go to the Windows Power Options menu and enable the features you prefer (see “Power-Saving States” on page 3 - 7). Make sure you have enabled Hibernate mode from the control panel.
The Wireless LAN or Bluetooth modules cannot be detected.	<i>The modules are off as the computer is in Airplane Mode.</i> Check the LED indicator  to see if it is in Airplane Mode (see “LED Indicators” on page 1 - 7). Use the Fn + F11 key combination to toggle Airplane Mode on/off (see Table 1 - 3, on page 1 - 11).

Problem	Possible Cause - Solution
The PC Camera module cannot be detected.	<i>The module is off.</i> Press the Fn + F10 key combination in order to enable the module (see “Function/Hot Key Indicators” on page 1 - 11). Run the camera application to view the camera picture.
The Wireless LAN/Bluetooth/ PC Camera modules cannot be configured.	The driver(s) for the module(s) have not been installed. Make sure you have installed the driver for the appropriate module (see the instructions for the appropriate module in “Modules & Options” on page 6 - 1).
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).</i> 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 device to your computer until the file transfer process from the computer has been completed.
The Bluetooth module is off after resuming from Sleep.	<i>The Bluetooth module’s default state will be off after resuming from the Sleep power-saving state.</i> Use the key combination (Fn + F12) to power on the Bluetooth module after the computer resumes from Sleep.
I am sliding my finger up and down on the right side of the Touchpad to scroll a Window and the Touchpad does not respond .	<i>There are different Touchpad versions available on this computer, and this version requires tapping/holding to scroll.</i> Either tap repeatedly, or hold the finger down, at the top or bottom right of the Touchpad (depending on the scrolling direction required) to scroll the window.
The fingerprint reader has problems scanning fingers .	<i>When fingers are wet or sweaty the software application may have difficulty reading a scanned finger.</i> Make sure your fingers are clean and dry when attempting to scan them across the sensor for detection.

Troubleshooting

Problem	Possible Cause - Solution
<p>The computer is off (or in Sleep Mode) but powered by the AC/DC adapter plugged in to a working outlet, or by battery with a capacity above 20%. I have plugged a device into the powered USB port in order to charge it, but the device is not charging.</p>	<p><i>The port is not powered on.</i> Toggle power to the port using the Fn + power button combination.</p> <p><i>This function may not work with certain external USB compliant devices (check your device's documentation).</i> If this is the case, power the computer on and connect the external USB device in order to charge it.</p> <p>Note that this function is designed to help charge USB compliant devices, but is not designed to allow their operation.</p>
<p>I have changed or replaced a WLAN module and have received an error message.</p>	<p>See “Intel® Rapid Storage Technology” on page 6 - 27.</p>
<p>When using a Bluetooth headset the audio appears to be mono and not stereo.</p>	<p><i>This is a common issue with Bluetooth headsets. To resolve this issue do the following (you will need to repeat this procedure after every boot up, restart, or when the system resumes from hibernation):</i></p> <ol style="list-style-type: none"> 1. Go to the Devices & Printers control panel in Windows. 2. Double-click the Bluetooth headset. 3. Click Connect to complete the stereo connection. <p>OR</p> <ol style="list-style-type: none"> 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.






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.






Interface (Ports & Jacks)

Notebook Ports and Jacks




Item	Description
<p>2-in-1 Audio Jack (Headphone-Out Jack/SPDIF Jack)</p> 	<p>This is a combination headphone/S/PDIF Jack. Headphones or speakers can be connected through this jack. Note: Set your system's volume to a reduced level before connecting to this jack.</p> <p>As a S/PDIF (Sony/Philips Digital Interface Format) Out Jack, it allows you to connect your DVD-capable PC to a Dolby AC-3 compatible receiver for "5.1" or 'dts' surround sound.</p>
<p>Card Reader Port</p> 	<p>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.</p> <ul style="list-style-type: none">• MMC (MultiMedia Card) / RSMMC• SD (Secure Digital) / Mini SD / SDHC / SDXC
<p>DC-In Jack</p> 	<p>Plug the supplied AC/DC adapter into this jack to power your computer.</p>
<p>External Monitor (VGA) Port</p> 	<p>This port allows you to connect an external monitor, or Flat Panel Display, to get dual video or simultaneous display on the LCD and external monitor/FPD.</p>
<p>HDMI-Out Port</p> 	<p>The HDMI-Out (High-Definition Multimedia Interface) is an audio/video connector interface for transmitting un compressed 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.</p>

A - 2 Interface (Ports & Jacks)

Interface (Ports & Jacks)



Item	Description
<p>Microphone-In Jack</p> 	<p>Plug an external microphone in to this jack to record on your computer.</p>
<p>Mini DisplayPort 1.2</p> 	<p>Mini DisplayPorts are miniaturized versions of 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.</p> <div data-bbox="464 432 1476 611" style="border: 2px solid red; border-radius: 15px; padding: 10px; text-align: center;">  <p>Mini DisplayPort Cables</p> <p>When using cables connected to the Mini DisplayPort, try to make sure that the cables are not bent excessively, as bending the cables may cause signal problems.</p> </div>
<p>RJ-45 LAN Jack</p> 	<p>This port supports LAN (Network) functions. Note: Broadband (e.g. ADSL) modems usually connect to the LAN port.</p>
<p>Security Lock Slot</p> 	<p>To prevent possible theft, a Kensington-type lock can be attached to this slot. Locks can be purchased at any computer store.</p>
<p>Smart Card Reader</p>	<p>The Smart Card reader reads pocket-sized Smart Cards, chip cards, or integrated circuit cards (ICC) with embedded integrated circuits. Smart Cards can be used for security identification, authentication, data storage and application processing within large organizations.</p> <p><i>The Smart Card reader can be switched on/off in the BIOS</i></p>

Interface (Ports & Jacks)

Item	Description
USB 2.0 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).
Powered USB 3.0 (USB 3.1 Gen 2 Type A) Port 	USB 3.0 ports capable of 5Gbps (SuperSpeed) are classified as USB 3.1 Gen 1 . There are two USB 3.1 Gen 1 (Type A) ports on this computer model.
USB 3.0 (USB 3.1 Gen 1 Type A) Ports 	USB 3.1 Gen 2 ports are capable of 10Gbps SuperSpeed+. This model includes 1 Type-C Gen 2 port . The Type-C USB 3.1 Gen 2 port is the smaller black port (there is a factory option to have this port configured as a Thunderbolt™ 3 Combo Port , see over).
USB 3.1 (USB 3.1 Gen 2 Type C) Port OR	Note: The powered USB 3.1 port may be toggled on /off by means of the Fn + Power Button key combination. When the powered USB port is on it will supply power (for charging devices only, not for operating devices) when the system is off but still powered by the AC/DC adapter plugged into a working outlet, or powered by the battery with a capacity level above 20% (this may not work with certain devices - see page 7 - 11).
USB 3.1 (USB 3.1 Gen 2 Type C) Thunderbolt™ 3 Combo Port (Factory Option)	Note: This function is designed to help charge USB compliant devices , but is not designed to allow their operation .
	Note: <i>The maximum amount of current supplied by USB Type-C ports is 500 mA for USB2.0/ 900 mA for USB 3.1</i>
	<i>The USB ports can be switched on/off in the BIOS</i>

A

A - 4 Interface (Ports & Jacks)

Item	Description
<p>Thunderbolt™ 3 Combo Port (Shared with the USB Type-C Port) (Factory Option)</p>	<p>This Thunderbolt 3 port allows for the connection of external peripherals to the computer by combining PCI Express (PCIe), DisplayPort (DP), USB 3.1 and its own Thunderbolt 3 technologies. Up to seven peripherals may be supported by one connector by daisy-chaining the devices. Devices supported include HDDs/SSDs, Audio Interfaces, docks, display devices, cameras, network cables etc.</p> <p>Install the driver as instructed in “Thunderbolt Port Driver” on page 6 - 38. This will install the Thunderbolt software to your computer, and this can be accessed by clicking or double-clicking the icon  in the Start screen, Desktop app or notification area of the taskbar.</p> <p>The display configuration for the Thunderbolt ports and Mini Display Ports can be set up in the BIOS (see “DDI Control (Advanced Menu > Advanced Chipset Control)” on page 5 - 10).</p> <div data-bbox="472 594 1476 953" style="border: 2px solid red; border-radius: 20px; padding: 10px; background-color: #ffe6e6;"> <p style="text-align: center;"> Thunderbolt Port Devices</p> <p>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:</p> <ol style="list-style-type: none"> 1. Go to the notification area of the taskbar in the Desktop App and click on the Safely Remove Hardware and Eject Media icon. 2. Click on Eject “<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. </div>

Interface (Ports & Jacks)

A

Appendix B: Control Center


Overview

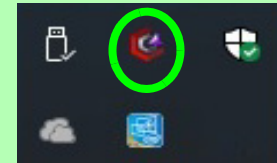
The following chapter will give a quick description of the functions of the **Control Center**. The **Control Center** gives quick access to frequently used controls and settings. Click the **Control Center** icons to toggle the appropriate function, or hold the mouse button down and move the dial control where applicable.




Figure B - 1 - Control Center

Control Center Access

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



Close the Control Center by clicking the close icon  in the top right of the panel.

Control Center

Control Center Menus

The Control Center contains 2 menu headings (**Basic Setting** & **Extra Setting**). The **Extra Setting** tab allows you to adjust the app skin color to your choice. A third menu item (**LED Device**) is available for systems supporting illuminated white LED keyboards only.

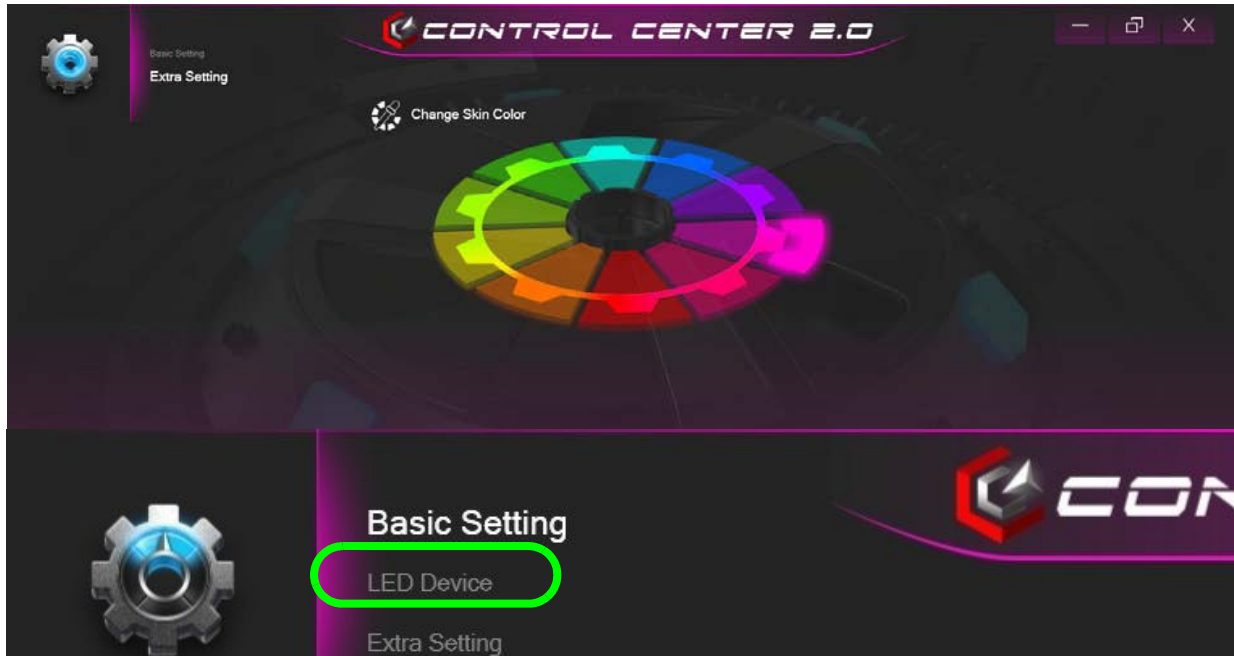


Figure B - 2 - Extra Setting & LED Device Menu

B - 2 Control Center

Power Modes

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

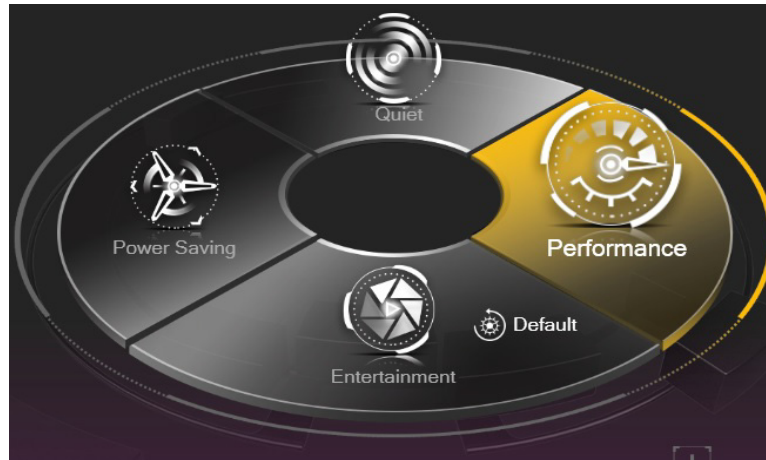


Figure B - 3 - Power Modes

- In **Power Saving** Mode the **Airplane Mode** will be **ON** and the **PC Camera** will be turned **OFF**.
- In **Quiet Mode** the **Airplane Mode** will be **ON**.
- In **Performance Mode** and **Entertainment Mode** the **Airplane Mode** will be **OFF**.
- Clicking the **Default** button in **Entertainment** will reset the default settings for this mode.

Control Center

Power Status 

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

Brightness



The **Brightness**

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

PC Camera/Touchpad/Left Windows Key



Click these buttons to toggle the **PC Camera** or **Touchpad** power status, or to turn the **Left Windows Key** functionality on/off. The button under the icon will appear highlighted when it is enabled. **Note that the power status of the camera module is also effected by the Power Mode selected (see “Power Modes” on page B - 3).**

Docking



If you have included the Docking Station in your purchase option, then the Docking button will be highlighted when the computer is successfully docked to the station (see *“Docking Station Guide” on page E - 1*).

Fan Speed



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

B - 4 Control Center

Sleep / Hibernate Button

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

**Volume**

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

**Caps Lock/Scroll Lock/Number Lock**

Click the button to toggle the appropriate lock mode.

See over for LED Device menu (for illuminated white LED keyboards only).

Control Center

LED Device Menu - KB Sleep Timer / KB Brightness

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

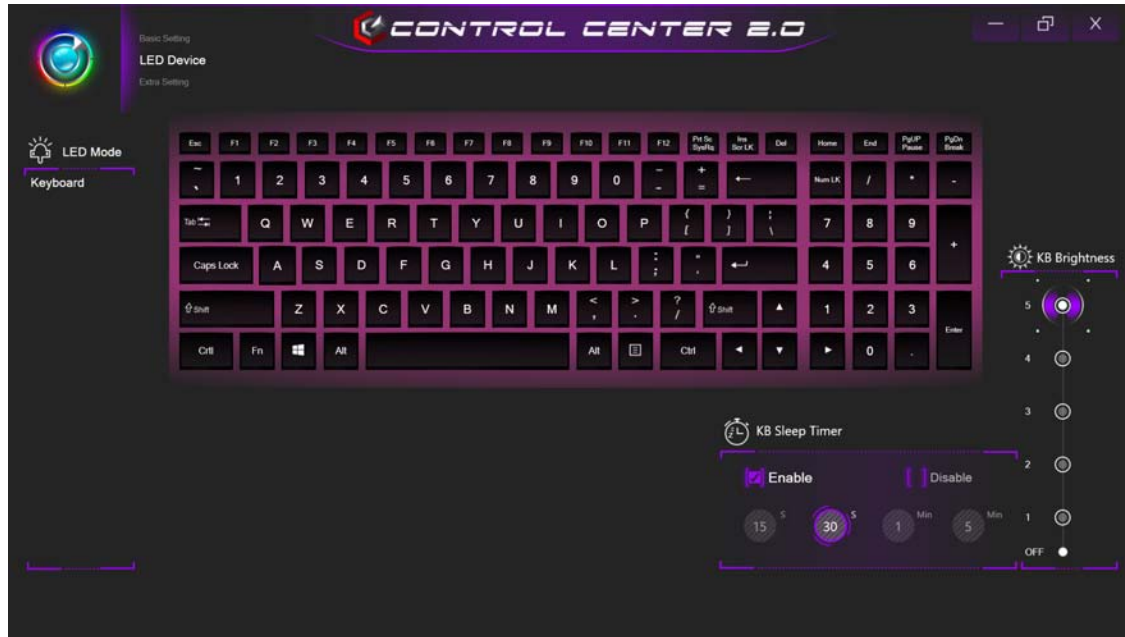


Figure B - 4 - LED Device

B - 6 Control Center

Mustang W640R Notebook

Appendix C: Video Driver Controls

The basic settings for configuring the LCD are outlined in “*Video Features*” on [page 1 - 30](#).

Video Driver Installation

Make sure you install the drivers in the order indicated in [Table 4 - 1, on page 4 - 4](#).

1. Insert the *Device Drivers & Utilities + User’s Manual* disc and click **Install Drivers** (button).
1. Click **2.Install VGA Driver > Yes**.
2. Click **Next > Yes > Next > Next**.
3. Click **Finish** to restart the computer.

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

Dynamic Video Memory Technology

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



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.

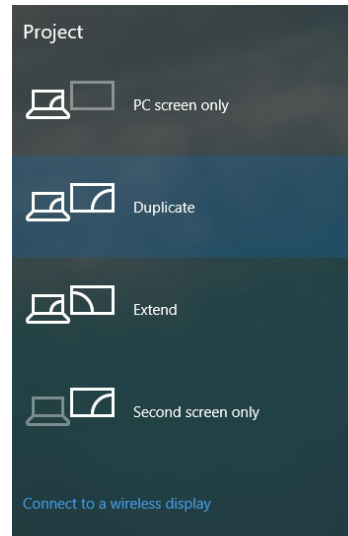
DVMT will not function in MS-DOS. DOS uses the legacy memory indicated.

Configure Other Displays Using Project

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

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

Figure C - 1
Project



C - 2 Configure Other Displays Using Project

Configuring an External Display In Windows

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

1. Attach your external display to the appropriate port, and turn it on.
2. Click the Start Menu and click **Settings > System** (or right-click the desktop and select **Display Settings**).
3. Click the **Multiple Displays** menu and select **Duplicate these displays**, **Extend these displays** or **Show only on 1/2**.
4. Click **Keep changes** to save any changes made.

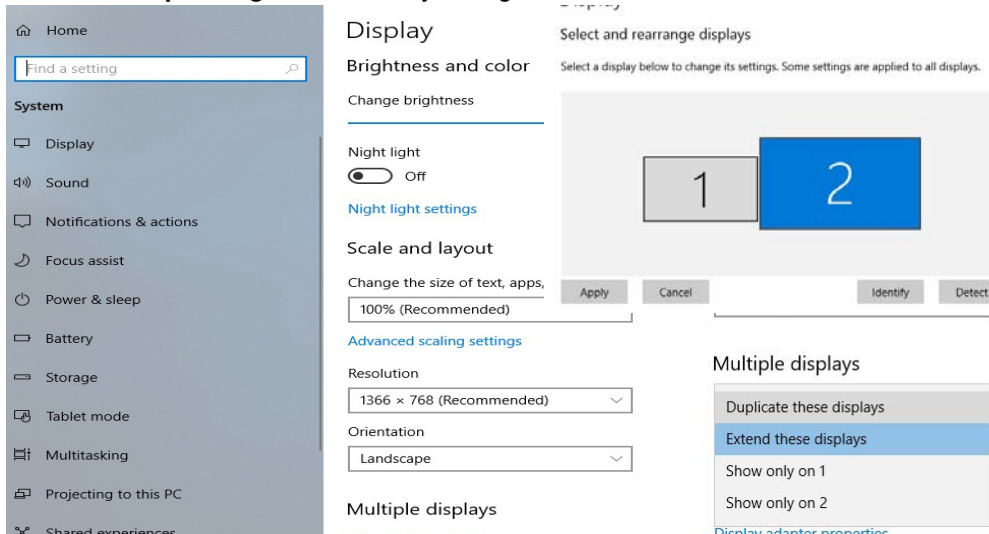



Figure C - 2
System > Display
(Multiple Displays)



Volume Adjustment

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

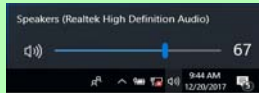


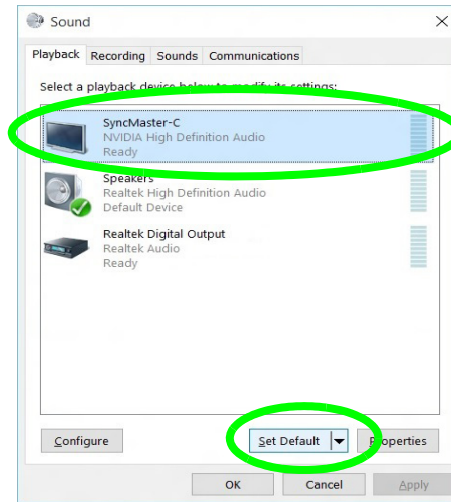
Figure C - 3


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

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.

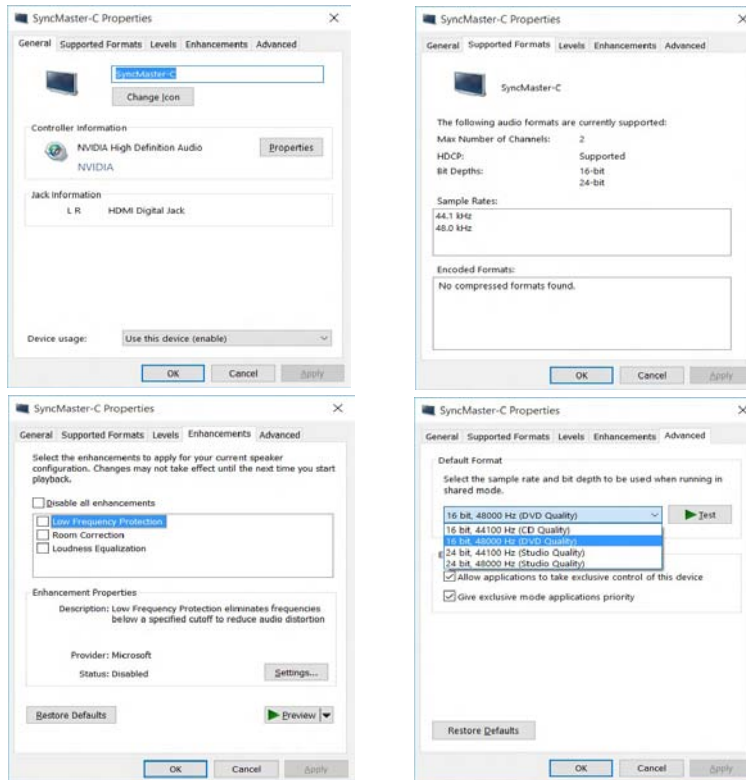


Figure C - 4
HDMI Device
Properties





Other Applications

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

HDMI Notes

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

HDMI Video Configuration

1. Connect an HDMI cable from the HDMI-Out port to your external display.
2. Configure your external display as per the instructions in *“Attaching Other Displays” on page C - 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.

Wireless Display Configuration

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

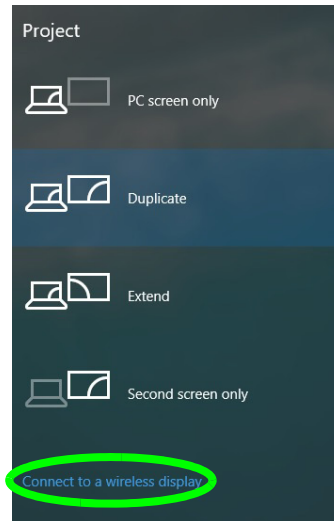


Figure C - 5
Add a Wireless Display

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

Video Driver Controls

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

Intel® HD/UHD Graphics Control Panel

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

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

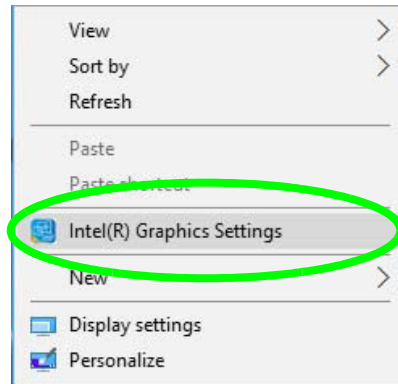



Figure C - 6
**Right-Click Desktop
(Intel Graphics
Settings)**

OR

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

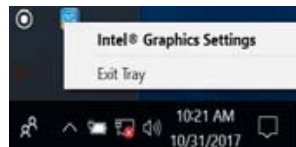


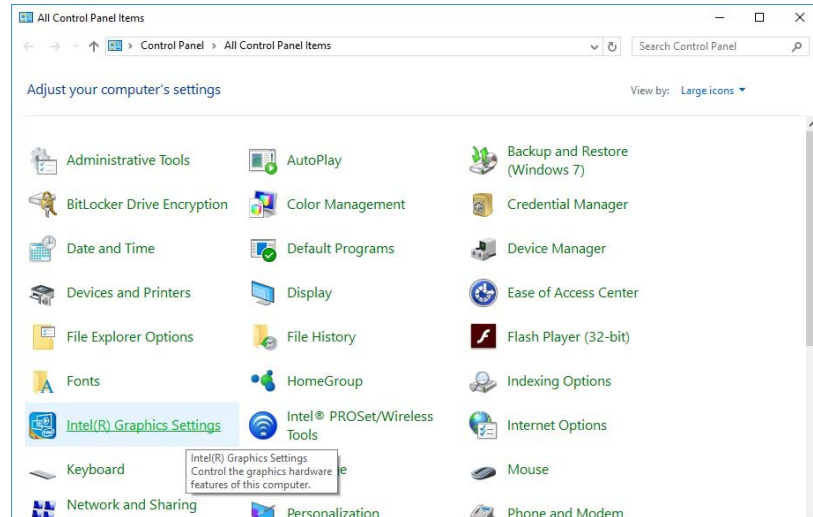
Figure C - 7
**Taskbar Notification
Area Icon Menu**

Video Driver Controls

OR

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

Figure C - 8
Control Panel
Intel® Graphics
Settings



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



Home

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

Figure C - 9
**Intel® HD/UHD
Graphics
Control Panel**

Video Driver Controls



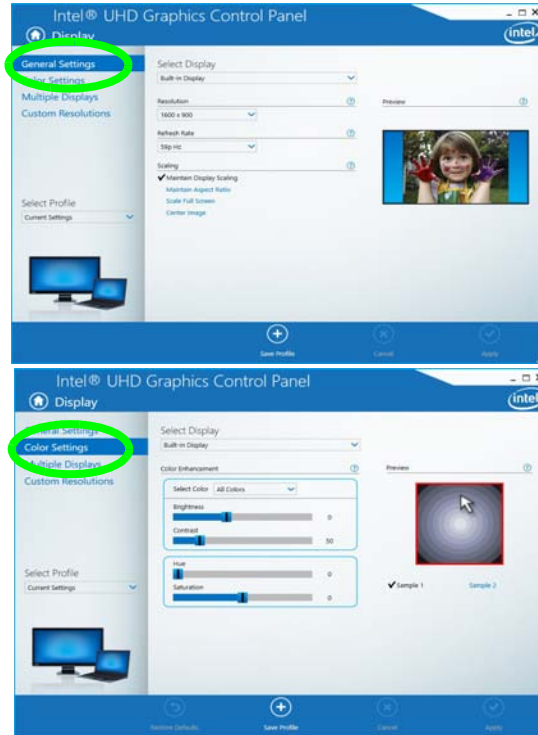
Multiple Display

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

Figure C - 10
Intel® HD/UHD Graphics Control Panel - Display

Display

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



Click the **Display** menu at the top of the screen to display the sub-menus. The **Multiple Displays** menu allows you to configure the display mode of any attached displays (see *“Attaching Other Displays” on page C - 21*). Click **Apply** to save any changes made.



Multiple Display

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

Audio Settings

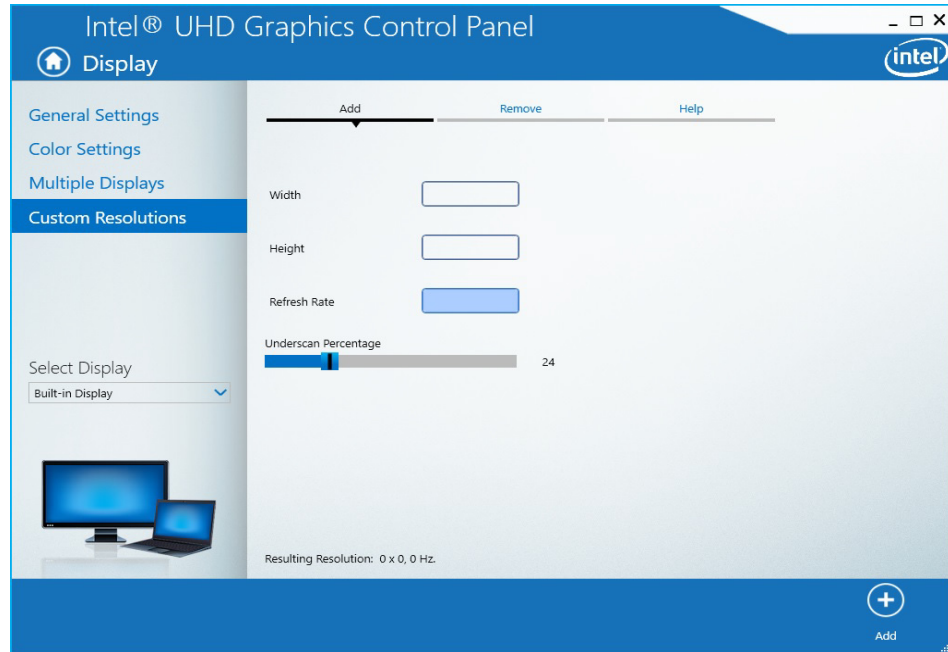
Any attached active displays must have audio capacity to allow audio configuration.

Figure C - 11
**Intel® HD/UHD
 Graphics
 Control Panel
 Display - Multiple
 Displays**

Video Driver Controls

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

Figure C - 12
**Intel® HD/UHD
Graphics
Control Panel
Display Settings -
Custom
Resolutions**



C - 14 Intel® HD/UHD Graphics Control Panel

Mustang W640R Notebook

3D

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

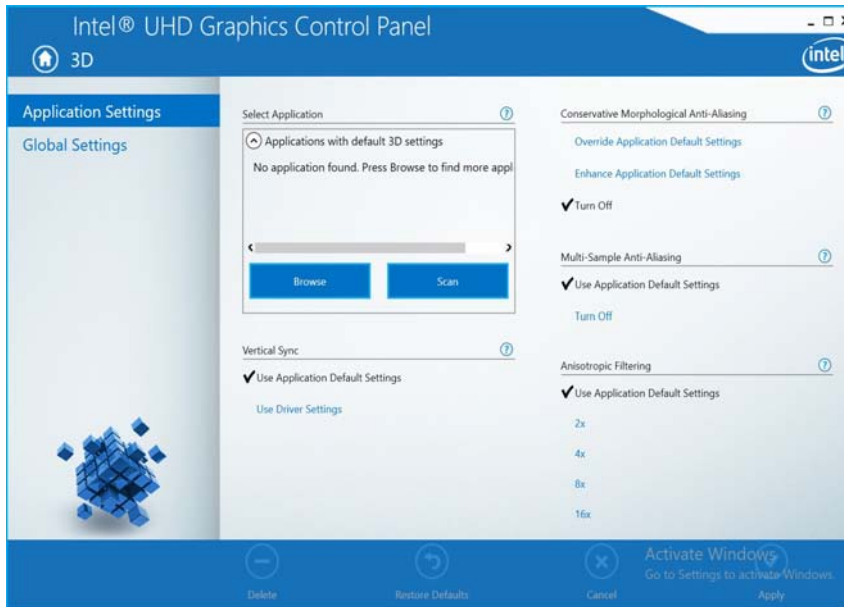


Figure C - 13
**Intel® HD/UHD
Graphics
Control Panel 3D**

Video Driver Controls

Options and Support

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

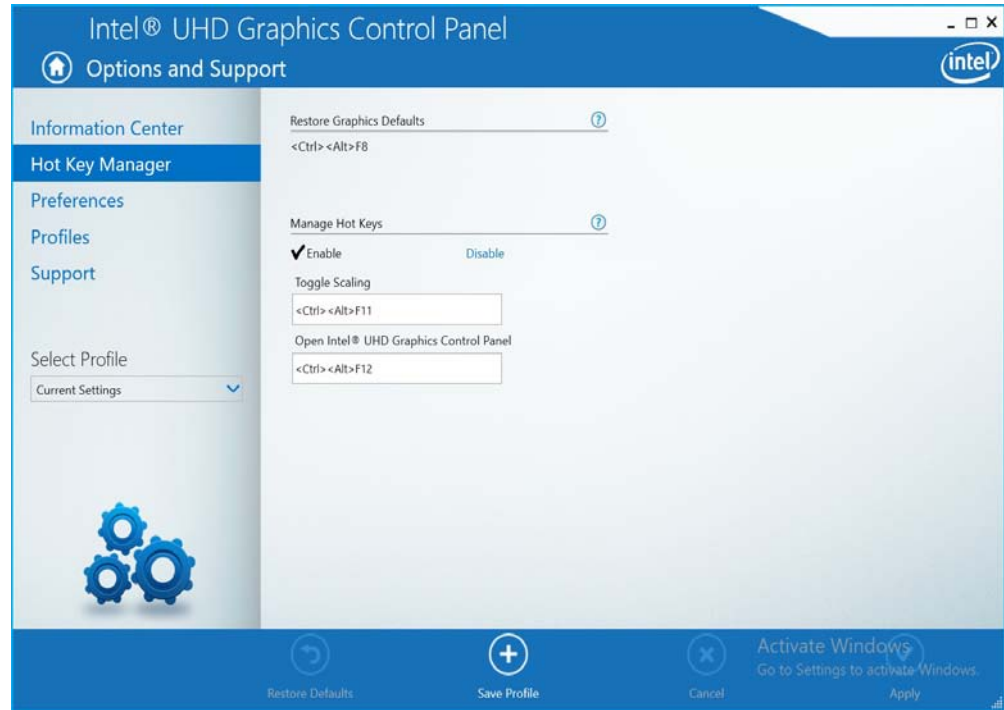


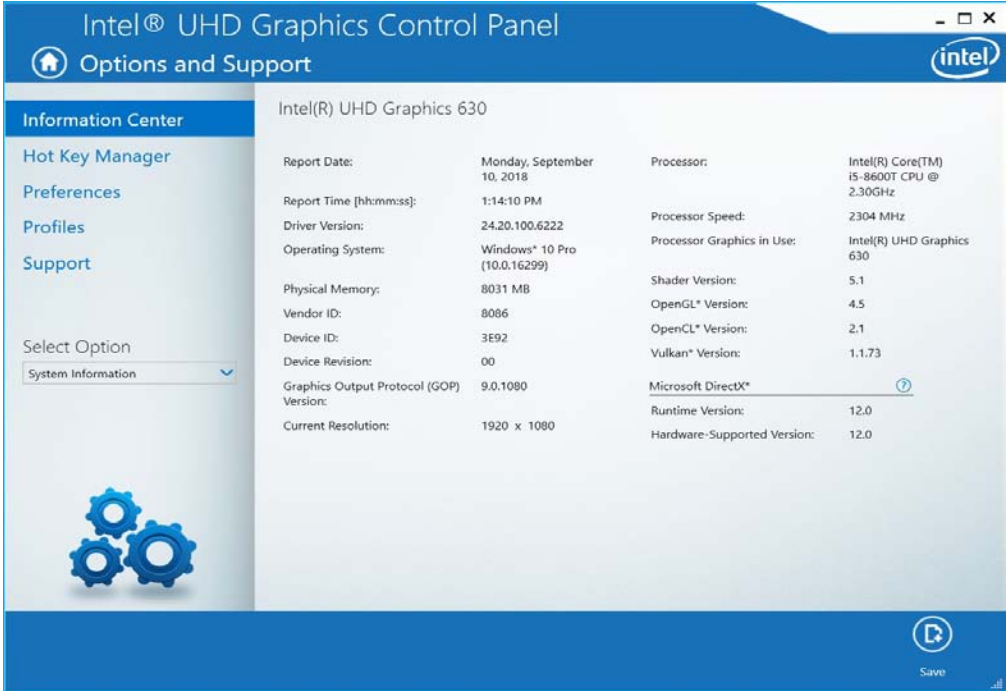
Figure C - 14
**Intel® HD/UHD
Graphics
Control Panel
Options and
Support**


C

C - 16 Intel® HD/UHD Graphics Control Panel

Mustang W640R Notebook

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

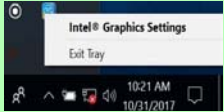




Preferences

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

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



The inset screenshot shows a system tray icon for "Intel® Graphics Settings" with an "Exit Tray" option.

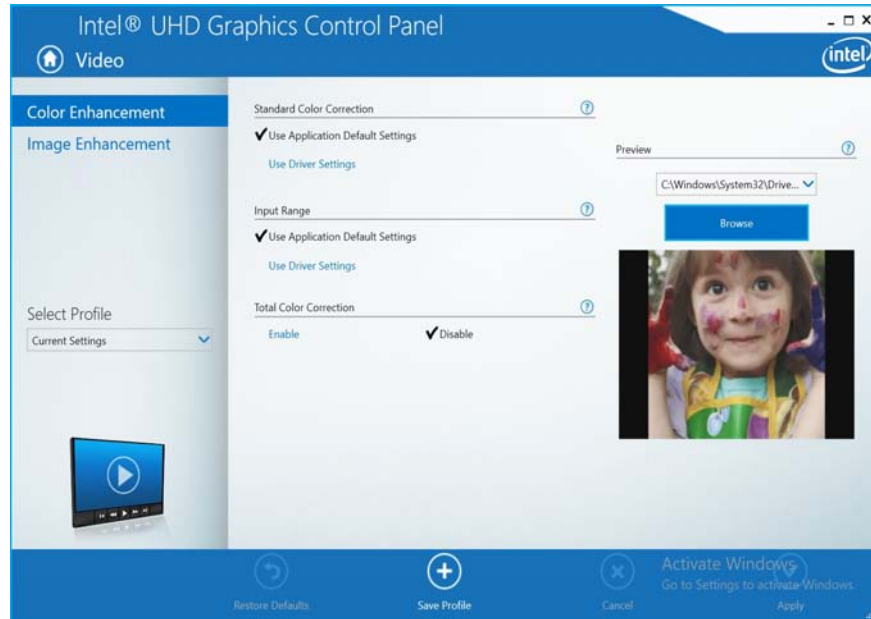
Figure C - 15
Intel® HD/UHD Graphics Control Panel Options - Information Center

Video Driver Controls

Video

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

Figure C - 16
Intel® HD/UHD
Graphics
Control Panel -
Video
(Color
Enhancement)



C - 18 Intel® HD/UHD Graphics Control Panel

Mustang W640R Notebook

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

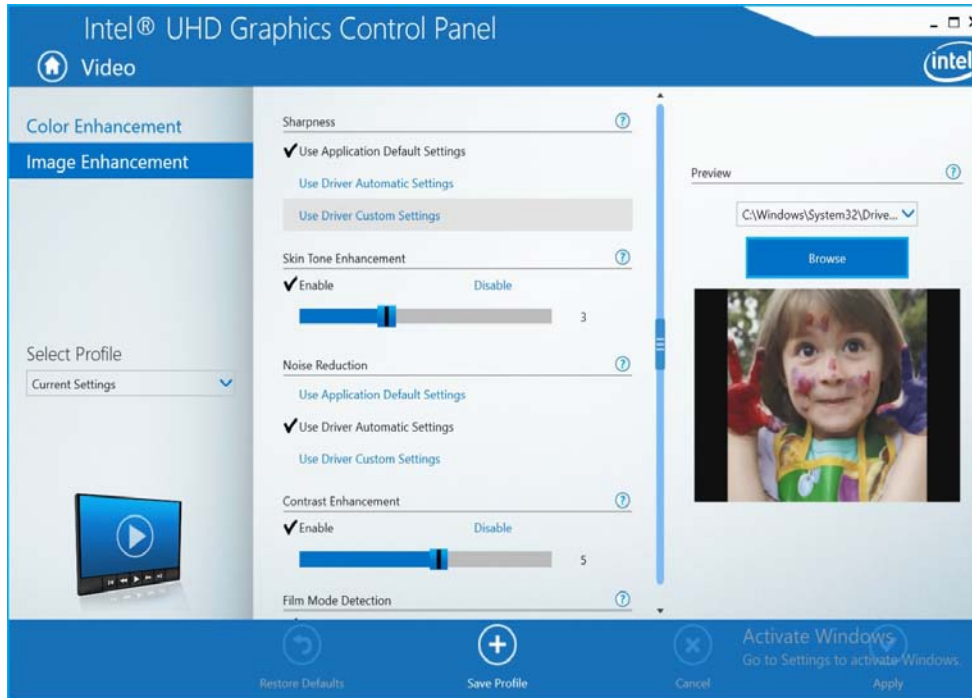


Figure C - 17
Intel® HD/UHD
Graphics
Control Panel - Video
(Image
Enhancement Basic)




4K2K Videos on 4K2K External Displays

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

Table C - 1
Display Modes

Display Devices & Options

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

Display Mode	Description	
Single Display	One of the connected displays is used as the display device (PC screen only or Second screen only).	 <p>Attaching Displays</p> <p>When you first attach an external display you may find that the desktop does not occupy the full screen area. Use either the display's auto adjust/configure controls, or the Intel(R) HD Graphics Control Panel to configure the full screen display.</p>
Clone/Duplicate	Both connected displays output the same view and may be configured independently	
Extended / Extend	Both connected displays are treated as separate devices, and act as a virtual desktop	
Collage	A number of connected displays are combined into a single unified higher resolution for larger screen sizes	

Attaching Other Displays

To Clone Displays:

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



Multiple Display

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

Figure C - 18
Display > Multiple Displays (Clone)

Video Driver Controls

Display Settings Extended Desktop

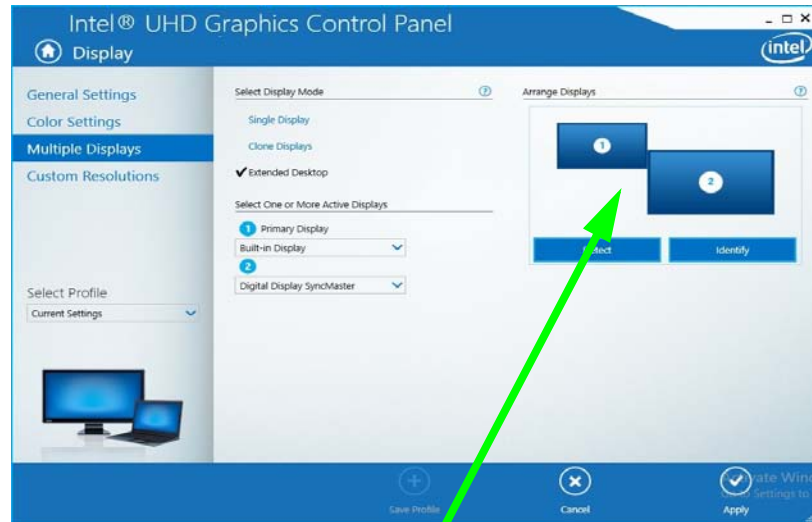
You can have different Colors, Screen Area and Monitor Refresh Rates for each display device **provided your monitor can support them.**

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

Figure C - 19
Display > Multiple Displays (Extended)

To Enable Extended Mode:

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



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).

C - 22 Attaching Other Displays

To Enable Collage Mode:

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



Collage Mode

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

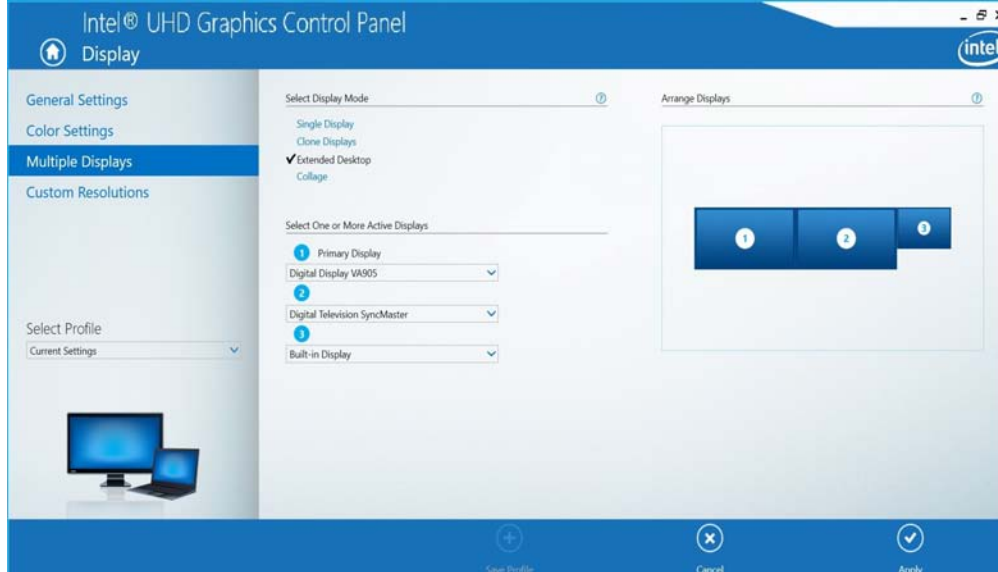


Figure C - 20
Display > Multiple Displays (Collage)

Video Driver Controls

C

Appendix D: Specifications



Latest Specification Information

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

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

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

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

Specifications

Core Logic	Storage	Interface
Intel® H370 Chipset	One Changeable 2.5" / 7.0 mm (h) HDD/SSD with SATA (Serial) Interface	One USB 2.0 Port Two USB 3.0 (USB 3.1 Gen 1) Port (Type-A) - (Including 1 ACDC Powered USB Port) One USB 3.1 (USB 3.1 Gen 1) Port (Type-C) OR (Factory Option) Thunderbolt™ 3 Combo Port (Shared with Type-C Port) One HDMI™ Out Port (with HDCP) One Mini DisplayPort 1.2 One External Monitor Port One 2-In-1 Audio Jack (Headphone Out / S/PDIF Out) One Microphone-In Jack One RJ-45 LAN Jack One DC-In Jack One Docking Port (With Hot Plug Functionality)
Display	One Changeable 9.0 / 9.5 mm(h) DVD Writert ODD with SATA Interface (Factory Option)	
15.6" / 39.62cm 16:9 FHD (1920 * 1080), HD (1366 * 768) Panel (3.8mm thick)	One M.2 SSD 2280, SATA/PCIe Gen 3*4 Interface (Factory Option)	
Memory	Dummy ODD (Factory Option)	
Dual Channel DDR4 Two 204 Pin SO-DIMM sockets supporting DDR4 2666 MHz (real operational frequency depends on the FSB of the processor) Memory Expandable from 8GB to 32GB (using 4GB / 8GB / 16GB SO-DIMM Modules)	Audio	
	High Definition Audio Interface S/PDIF Digital Output (S/PDIF) Built-In Array Microphone 2 * Built-In 2W Speakers	
	Keyboard & Pointing Device	
	Full Size Isolated Keyboard With Numeric Pad Full Size White Illuminated LED Keyboard with Numeric Keypad (Factory Option) Built-in Touchpad with Multi-Gesture and Scrolling Functionality	
		Card Reader
		Embedded Multi-In-1 Push-Push Card Reader - MMC/ RS MMC - SD/ Mini SD / SDHC/ SDXC Note: Some of these cards require PC adapters usually supplied with the cards.



SO-DIMM Memory Types

All SO-DIMM memory modules installed in the system should be identical (the same size and brand) in order to prevent unexpected system behavior.

Do not mix SO-DIMM memory module sizes and brands otherwise unexpected system problems may occur.

D - 2 Specifications

Mustang W640R Notebook

Slot	Power	Shipping Mode Flexicharger Intel® Optane™ (For Intel Core Processor Family) Rubber Painted Style Finish (for some models only)
One Smart Card Reader Slot (Factory Option) Three M.2 Card Slots: ===== Slot 1 for M.2 2230 WLAN Combo Module with PCIe / USB / CNVi Interfaces (E Key) Slot 2 for M.2 2280 Card SSD (Solid State Drive) with SATA/PCIe Gen 3*4 Interface (M Key) Slot 3 (Factory Option) for M.2 3042 LTE 4G Module with USB Interface (B Key)	Full Range AC/DC Adapter AC input 100 - 240V, 50 - 60Hz, DC Output 19V, 3.42A (65 Watts) Standard Optional 120W AC Adapter available Optional 150W AC Adapter available (all are auto-switching 100-240V, 50-60Hz DC) 1 Standard Built-In 6 Cell Smart Lithium Ion Battery Pack 62WH - Standard Battery (Operating System
Communication	6 Cell Smart Lithium Ion Battery Pack 93WH - Optional Larger Battery is available instead of the standard battery at purchase or after.	Windows® 10 RS4 (64-bit)
Built-In Intel® 10/100/1000Mb Base-TX Ethernet LAN Intel® Dual Band Wireless-AC 9560 (2*2 802.11 a/c) WLAN + Bluetooth M.2 2230 Combo Module (Factory Option) 4G LTE M.2 3042 Card Module with USB Interface (Factory Option) 1.0M HD Video Camera Module	Security	BIOS
	Security (Kensington® Type) Lock Slot BIOS Password Area Fingerprint Reader Module Trusted Platform Module 2.0 Intel PTT for Systems Without TPM Hardware	Insyde BIOS/Flash ROM - Total 128Mb Drivers and BIOS Updates may be obtained from Ace Computers via download - See Drivers Link at www.acecomputers.com/driverdownload.asp
	Design Features	Power Management
	USB / Card Reader / Smart Card ports/ slots can be switched on/off in the BIOS LCD Panel can be opened to 180 degree angle (with 6 Cell Battery and if system is not docked)	Supports Wake on LAN by AC mode only Supports Wake on USB Supports Wake on RTC alarm (S4) by AC mode only



Specifications

Indicators

Power/Suspend, Battery, HDD/ODD, Airplane Mode, Num Lock, Caps Lock, Scroll Lock, Camera (on module)

Environmental Spec

Temperature

Operating: 5°C - 35°C

Non-Operating: 20% - 80%

Relative Humidity

Operating: -20°C - 60°C

Non-Operating: 10% - 90%

Dimensions & Weight

382mm(w) * 259.5 mm(d) * 32.95 mm(h)

2.5kg Barebone System* with 62WH Battery

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

Appendix E: Docking Station Guide

Overview

The docking station provides your computer with an easy connectable desktop environment when portability is not required. This allows for easy connections to external displays, USB devices (with a full range of extra USB ports), audio devices and provides a battery charging facility.

Compatibility

Note that this docking station is compatible with particular computer models with the appropriate docking connector only. Attempting to dock the computer to an incompatible docking system will result in an error message (in this case immediately separate the computer from the docking station). Please contact your distributor/supplier for full details.

Computer and Docking Station

The computer may **hot** or **cold dock/undock** with the docking station, i.e. the computer may be powered on (hot docking/undocking) or powered off (cold docking/undocking) when docking or undocking. However if you intend to hot dock/undock the system then make sure that the **hot key driver**, provided on the computer's *Device Drivers & Utilities + User's Manual* disc, is installed.



Hot Docking/Hot Undocking & Power Saving Modes

If the computer is in a power-saving state (Sleep or Hibernate), or is resuming from a power saving state, do not attempt to hot dock or hot undock the system.

Moving the Docking Station

Note that if the notebook is docked with the docking station, do not attempt to move the docked unit in order to avoid losing connection. If you wish to move the docking station, then make sure you undock the notebook from the docking station before doing so.

Docked System Power

The system power for a docked unit should be provided only by the docking station's AC/DC adapter plugged in to the DC-In jack at the rear of the docking station (**make sure the computer's AC/DC adapter is not used at any time when the computer is docked**). Follow the instructions on the next pages to safely dock and undock your computer with the docking station.

System Map: Front View

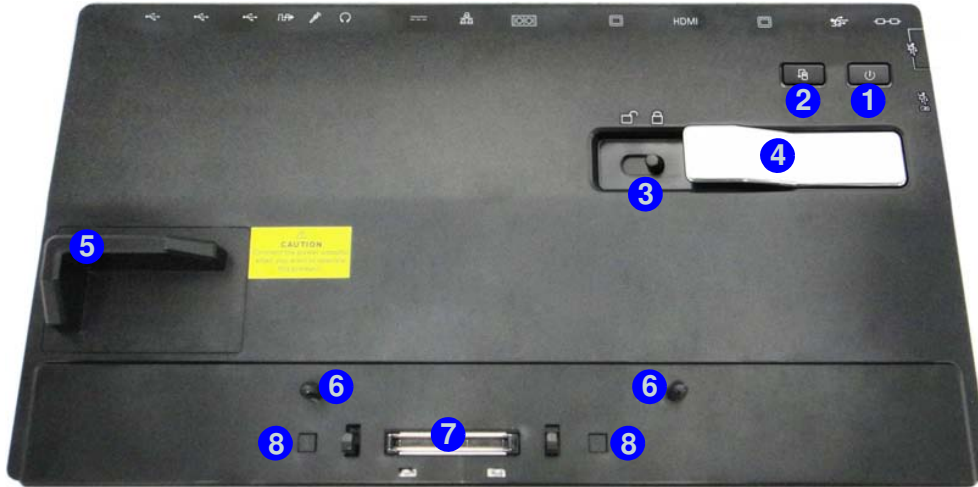


Figure E - 1
System Map Front

1. Power Button LED
2. Backup Hotkey (if a Hard Disk is installed in the Device Bay)
3. Lock Switch
4. Notebook Eject Latch
5. Notebook Placeholder
6. Retaining Pins
7. Docking Connector
8. Eject Pins



Backup Hotkey

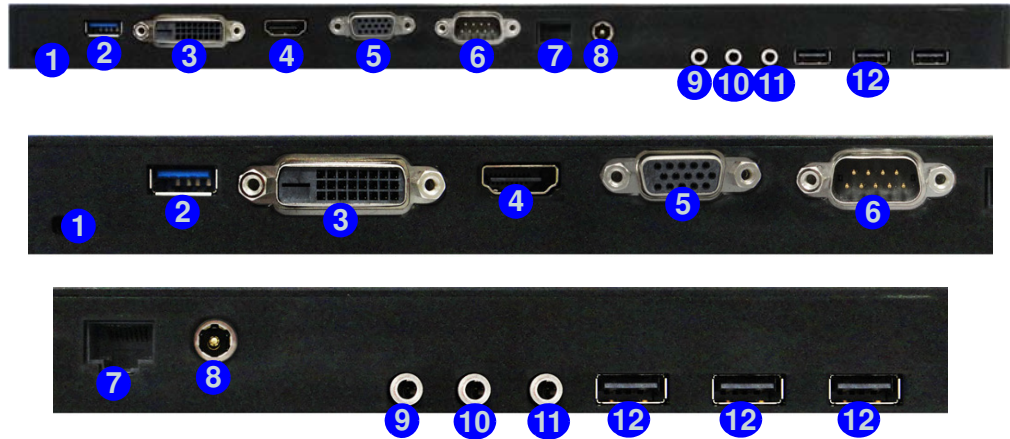
The Backup hotkey provides a quick link to the Windows 10 Recovery control panel to administer backups within Windows (see *“Backup Hotkey” on page E - 22*).

Docking Station Guide

Figure E - 2
System Map Rear

1. Security Lock Slot
2. USB 3.0 Port
3. DVI-D Out Port
4. HDMI-Out Port
5. External Monitor Port
6. RS232 (Serial) COM Port
7. RJ-45 LAN Jack
8. DC-In Jack
9. Headphone Jack
10. Microphone Jack
11. S/PDIF-Out Jack
12. USB 2.0 Ports

System Map: Rear View



LAN Jack & Docking

Note that when the computer is docked with the docking station, the notebook's LAN Jack can no longer be used as the network jack. When the system is docked use the docking station's LAN jack as the network jack.

E - 4 System Map: Rear View

Mustang W640R Notebook

Power Button LED & Lock Switch LED Indicator


Icon	Color	Description
	Orange	DC Power is Plugged In and the Computer is Off or in Hibernate Mode*
	Green	The Docking Station is On or in Sleep Mode

Table E - 1 - Power Button LED & Lock Switch LED Indicator

*To confirm the computer's power status check the LED Power Indicators on the computer itself.

Figure E - 3
System Map
Left & Right Views

1. Bay with HDD or Dummy Caddy
2. Powered USB 3.0 Port
3. USB 3.0 Ports

System Map: Left & Right Views



USB Port Power

Note that power to the notebook computer and docking station's USB ports may be enabled/disabled in the notebook computer's BIOS settings (see the BIOS guide in Chapter 5 of the notebook's user manual).

Cold Docking the Computer to the Docking Station

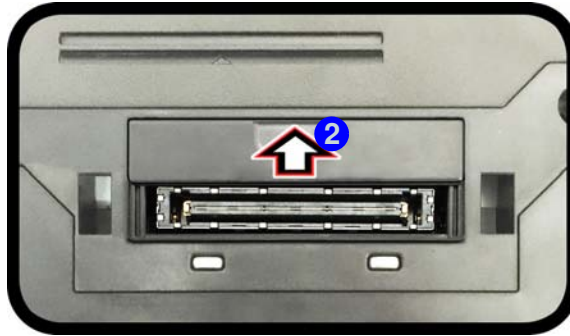
1. Remove all packing materials and place the docking station on a stable surface.
2. Securely attach any peripherals you want to use with the docking station (e.g. keyboard and mouse) to their ports.
3. Attach the AC/DC adapter to the DC-In jack at the rear of the docking station, and then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
4. The power button LED **1** on the docking station will be **orange**.



Figure E - 4 - Docking Station with AC/DC Adapter Plugged

Docking Station Guide

5. Make sure the computer's hot key driver is installed (especially if you intend to hot dock the system).
6. Remove the AC/DC adapter from the notebook computer and then close the computer's lid/LCD and turn it over (**if you are using the optional 9 cell battery make sure you remove the battery before attempting to dock the computer with the docking station**).
7. Slide the notebook computer's docking port cover latch in the direction of the arrow at point **2** to open the cover (failure to open the cover of the docking port before connecting the computer to the docking station may result in irreparable damage to the connector on the docking station).



Docking Port Cover

Make sure you keep the cover closed when the computer is not docked in the station. This will help prevent foreign objects and/or dust getting in to the contact area.

Figure E - 5 - Opening the Docking Port

E - 8 Cold Docking the Computer to the Docking Station

Mustang W640R Notebook

8. **Make sure that the notebook computer's AC/DC adapter is NOT ATTACHED to the computer's DC-In jack and that the computer is OFF.**
9. Ensure that the lock switch on the docking station is in the **unlock position**.
10. Press the computer down onto the docking station so that the docking connectors line up.
11. Slide the lock switch on the docking station in to the lock position **3**.
12. Press the power button **4** on the docking station (or power button on the notebook) to turn it on.
13. The **Power LED on the docking station** will be **green** and you can then use the docking station ports.

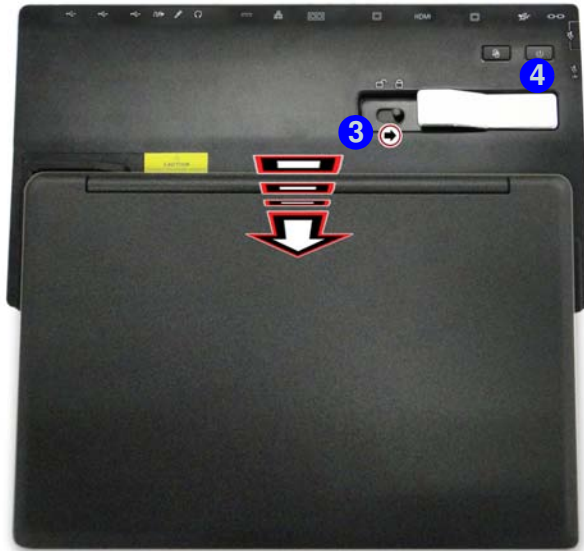


Figure E - 6 - Slide the Lock Switch



Moving the Docking Station

Note that if the notebook is docked with the docking station, do not attempt to move the docked unit in order to avoid losing connection. If you wish to move the docking station, then make sure you undock the notebook from the docking station before doing so.

AC/DC Adapter

Use only the docking station's AC/DC adapter plugged-in to the docking station's DC-In jack to power the computer.

Docking Station Guide

Cold Undocking the Computer from the Docking Station

1. Shut the computer down as per the normal **Windows** shutdown (select **Shut Down** from the **Start** menu in **Windows**) procedure (the **Power LED on the docking station** will be **orange**).
2. Slide the lock switch **1** on the docking station in to the unlock position.
3. Lift the eject latch **2** fully in the direction indicated to unlock the docking station, while carefully holding the notebook computer with one hand.
4. You can then lift the notebook computer off the docking station.
5. After disconnecting the computer from the docking station, slide the docking port cover latch in the direction of the arrow **3**.

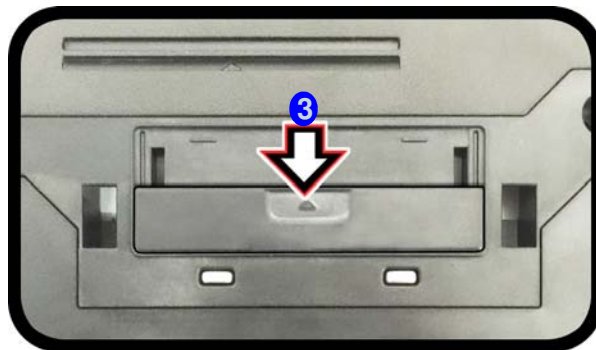


Figure E - 7 - Slide the Switch to Unlock & Lift the Eject Latch

E - 10 Cold Undocking the Computer from the Docking Station

Mustang W640R Notebook

Hot Docking the Computer to the Docking Station

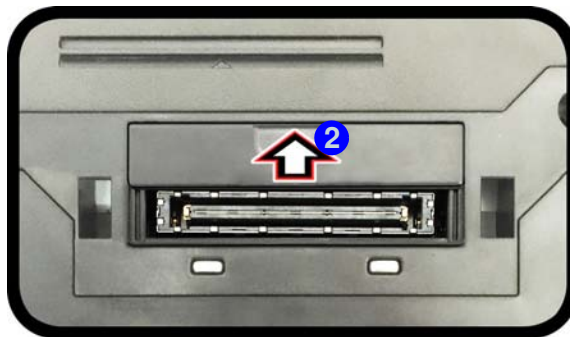
1. Remove all packing materials and place the docking station on a stable surface.
2. Securely attach any peripherals you want to use with the docking station (e.g. keyboard and mouse) to their ports.
3. Attach the AC/DC adapter to the DC-In jack at the rear of the docking station, and then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
4. The power button LED **1** on the docking station will be **orange**.



Figure E - 8 - Docking Station with AC/DC Adapter Plugged

Docking Station Guide

5. Make sure the computer's Control Panel AP driver is installed for hot docking/undocking the system.
6. The computer should be on, however remove the AC/DC adapter from the notebook computer and then close the computer's lid/LCD and turn it over (**if you are using the optional 9 cell battery you cannot hot dock the computer with the docking station**).
7. Slide the notebook computer's docking port cover latch in the direction of the arrow at point **2** to open the cover (failure to open the cover of the docking port before connecting the computer to the docking station may result in irreparable damage to the connector on the docking station).



Docking Port Cover

Make sure you keep the cover closed when the computer is not docked in the station. This will help prevent foreign objects and/or dust getting in to the contact area.

Figure E - 9 - Opening the Docking Port

E - 12 Hot Docking the Computer to the Docking Station

8. Ensure that the lock switch on the docking station is in the **unlock position**.
9. Press the computer down onto the docking station so that the docking connectors line up (the **Power LED on the docking station** will be **orange**).
10. Slide the lock switch on the docking station in to the lock position **3**.
11. The **Power LED on the docking station** will be **green** and you can then use the docking station ports.

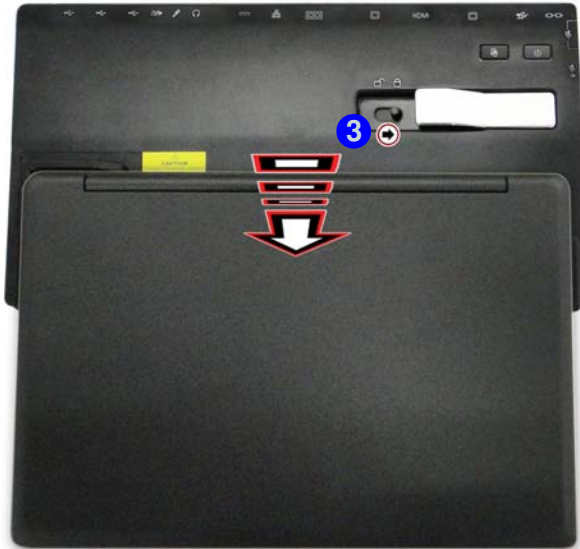


Figure E - 10 - Slide the Lock Switch



Moving the Docking Station

Note that if the notebook is docked with the docking station, do not attempt to move the docked unit in order to avoid losing connection. If you wish to move the docking station, then make sure you undock the notebook from the docking station before doing so.


AC/DC Adapter

Use only the docking station's AC/DC adapter plugged-in to the docking station's DC-In jack to power the computer.

Docking Station Guide

Hot Undocking the Computer from the Docking Station

Hot undocking using *Windows*:

1. When the system is docked click the icon  in the taskbar notification area and click **Safely Remove Hardware and Eject Media** **1** (*Figure E - 11*) from the menu.
2. Select **Eject Docking Station** **2** and the **Undock Complete** **3** message will appear in the notification area of the taskbar (the docking power LED will be **Orange** at this point and the ports, buttons and attached devices on the docking station **will not work**).
3. Follow steps **2 to 5** of the cold undocking procedure on page *E - 10* to complete the undocking process.



Battery Condition

Note that if you attempt to hot undock the system when the battery level is low (default below 10%) you will receive an error message. In this case shut the system down to cold undock the notebook from the docking station, or let the battery charge sufficiently until it is no longer classed at a low level.

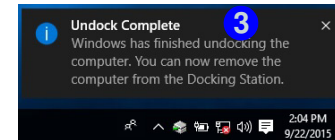
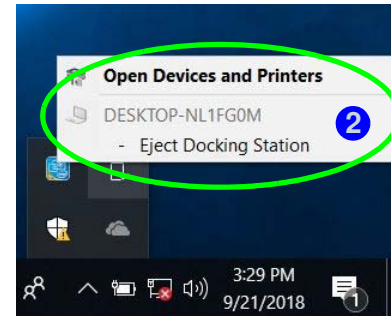
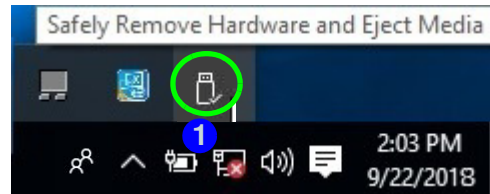


Figure E - 11 - Using the Windows System to Hot Undock the Computer

E - 14 Hot Undocking the Computer from the Docking Station

Power Button Configuration

To prevent your computer from entering a power-saving state if you choose to work with the lid/LCD closed, then it may be necessary to redefine what the computer is set to do if the lid/LCD is closed when plugged in.

1. Go to the click **Power Options (Hardware and Sound)** control panel.
2. Click **Choose what closing the lid does** (in the left pane).
3. Set the **When I close the lid:** option when the computer is **plugged in** to **Do nothing**.
4. Click **Save Changes** and close the control panel.

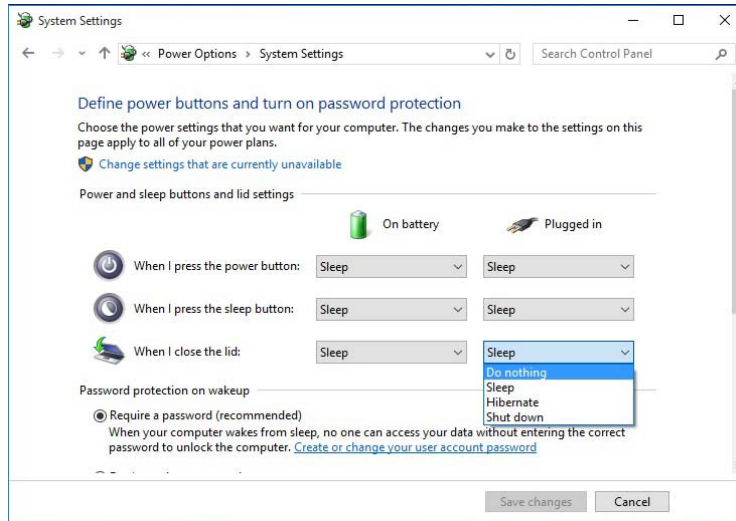


Figure E - 12 - Power Options (Choose what closing the lid does)


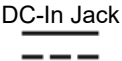



Hot Docking/Hot Undocking & Power Saving Modes



If the computer is in a power-saving state (Sleep or Hibernate), or is resuming from a power saving state, do not attempt to hot dock or hot undock the system.

Docking Station Ports & Jacks

The following will give a quick description of the interface (ports & jacks) which allow your docking station and computer to communicate with external devices, connect to the internet etc. When the notebook is docked to the docking station all the ports on the docking station will function, however only some of the ports on the notebook will function (see the note alongside each item for specific information).

Item	Description	Note
COM/RS232 Serial Port 	The COM/serial is a communication interface for data transfer, through which information transfers in or out one bit at a time. This port can be used to connect the computer to devices such as terminals and peripherals.	This port is supported in the Windows environment and at the DOS prompt, however there is no COM mouse support.
DC-In Jack 	Plug the supplied AC/DC adapter into this jack to power your docking station and docked computer.	Use only the docking station's AC/DC adapter plugged-in to the docking station's DC-In jack to power the computer.
DVI-D Out Port 	The DVI-D Out (Digital Visual Interface-Digital) Port is a video connector interface supporting digital displays only. This allows you to connect an external monitor, TV or Flat Panel Display etc. as a display device by means of a DVI-D compatible cable.	

E - 16 Docking Station Ports & Jacks

Item	Description	Note
External Monitor (VGA) Port 	This port allows you to connect an external monitor, or Flat Panel Display, to get dual video or simultaneous display on the LCD and external monitor/FPD.	Use only the external monitor port on the docking station when the system is docked.
HDMI-Out Port 	The HDMI-Out (High-Definition Multimedia Interface) is an audio/video connector interface for transmitting uncompressed digital streams. This allows you to connect an external monitor, TV or Flat Panel Display etc. as a display device by means of a HDMI cable. Note that HDMI carries both audio and video signals.	You can use the HDMI ports on both the docking station and the notebook, connected to two separate displays, when the system is docked.






Docking Station HDMI Port Resolutions Supported

Note that when the computer is docked to the docking station, and the docking station's HDMI port is connected to an external display, the resolutions supported are as follows:

- DTV resolutions: 480i, 576i, 480p, 576p, 720p, 1080i to 1080p
- PC resolutions: VGA, SVGA, XGA, SXGA to UXGA

Docking Station Guide




Item	Description	Note
Headphone-Out Jack 	Headphones or speakers may be connected through this jack. Note: Set your system's volume to a reduced level before connecting to this jack.	You can use the headphone and microphone jacks on either the computer and/or docking station when the system is docked.
Microphone-In Jack 	Plug an external microphone in to this jack to record on your computer.	
RJ-45 LAN Jack 	This port supports LAN (Network) functions. Note: Broadband (e.g. ADSL) modems usually connect to the LAN port.	Note that when the system is docked the notebook's LAN Jack can no longer be used and you must use the docking station's LAN jack as the network jack only.





Wake On LAN Support

Note that when the system is docked Wake On LAN will be disabled. Wake On LAN is only supported in AC Mode (i.e. when the computer is powered by its AC/DC adapter and not by the battery). When the system is docked, the power for a docked unit should be provided only by the docking station's AC/DC adapter plugged in to the DC-In jack at the rear of the docking station (and not the computer's AC/DC adapter), and therefore Wake On LAN is not supported by a docked system.

E - 18 Docking Station Ports & Jacks

Item	Description	Note
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.	
S/PDIF-Out Jack 	This S/PDIF (Sony/Philips Digital Interface Format) Out Port allows you to connect your DVD-capable PC to a Dolby AC-3 compatible receiver for “5.1” or ‘dts’ surround sound.	
 <p>Docking Station - S/PDIF Out Jack</p> <p>Note that the docking station’s S/PDIF Out Jack does not support optical fibre cables, and when the computer is docked to the docking station you must use the docking station’s S/PDIF Out Jack for any S/PDIF connections.</p>		

Docking Station Guide

Item	Description	Note
<p>USB 2.0/1.1 Ports*</p>  <p>USB 3.0 Ports</p> 	<p>These USB 2.0 compatible ports (USB 2.0 is fully USB 1.1 compliant) are for low-speed peripherals such as keyboards, mice or scanners, and for high-speed peripherals such as external HDDs, digital video cameras or high-speed scanners etc. Devices can be plugged into the computer, and unplugged from the computer, without the need to turn the system off (if the power rating of your USB device is 500mA or above, make sure you use the power supply which comes with the device).</p> <p>The USB 3.0 ports are denoted by their blue color; USB 2.0 ports are colored black. USB 3.0 will transfer data much faster than USB 2.0, and is backwards-compatible with USB 2.0.</p> <p>Note: The powered USB 3.0 port function is designed to help charge USB compliant devices, but is not designed to allow their operation.</p>	<p>You can use the ports on both the computer and the docking station when the system is docked.</p> <p>*Note: The powered USB 3.0 port (see 3 Figure E - 3 on page E - 6) will supply power when the docking station is powered by the AC/DC adapter plugged into a working outlet, (this may not work with certain devices). The notebook does not need to be docked for this to function. There is no LED to indicate a charge status on the docking station.</p>

E - 20 Docking Station Ports & Jacks

Multiple Displays

Any **two** of the following displays may be enabled simultaneously when the system is docked. You can toggle through the display options by using the **Fn + F7** key combination (make sure any attached displays are powered on).

1. The notebook's LCD panel
2. An external display attached to the notebook's HDMI port.
3. An external display attached to the notebook's Mini DisplayPort.
4. An external display attached to the docking station's external monitor (VGA) port.
5. An external display attached to the docking station's DVI-D port.
6. An external display attached to the docking station's HDMI port.

BIOS Controls - USB ports, Card Reader, Smart Card & ExpressCard

Note that power to the notebook computer's **USB ports, Card Reader, Smart Card** and **ExpressCard** may be enabled/disabled in the notebook computer's BIOS settings (see the BIOS guide in **Chapter 5** of the notebook's user manual). The **USB 3.0 Power** item and **Powered USB 2.0 Port Power** settings in the BIOS will also affect the power supplied to the docking station's 4 * USB 3.0 ports and 3 * USB ports respectively.

The notebook's **Card Reader, Smart Card** and **ExpressCard** will continue to function when the system is docked as long as they are not disabled in the BIOS.

Backup Hotkey

When the system is docked you can press the **Backup Hotkey** (1 *Figure E - 13*) to launch the **Windows Recovery** (see overleaf) application. If you do not have a hard disk installed in the docking station you can set the **Windows File History** application to backup to any attached hard disk, CD/DVD or non system partition of your computer.



Docking Station - HDD Support

The docking station's SATA port only supports HDDs with a **SATAII (or lower) interface**.



Figure E - 13 - Front View (HDD Backup Hotkey)

E - 22 Backup Hotkey

1. Press the hard disk backup **hotkey**.
2. This will run the Windows **Recovery** control panel.
3. You can then choose to backup individual files and folders or alternatively create a System Image Backup (see your Windows documentation for details).

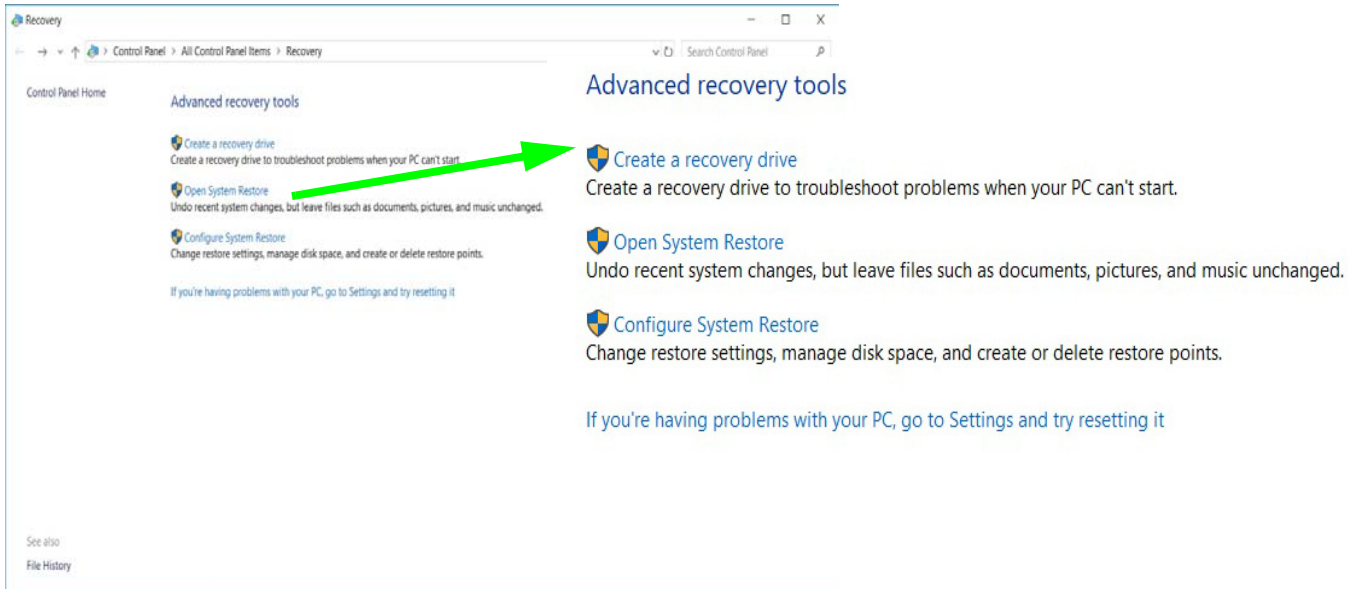


Figure E - 14 - Windows Recovery

Docking Station Guide

Specifications

Storage
One Changeable 2.5" / 9.5 mm(H) HDD Caddy with SATA (Serial) Interface (Factory Option)
Interface and Ports
Three USB 2.0 Ports Four USB 3.0 Ports (including 1 * powered USB port) One External Monitor Port One DVI-D Out Port One HDMI™ Out Port (with HDCP) One Headphone-Out Jack One Microphone-In Jack One S/PDIF-Out Jack One RJ-45 LAN Jack One RS232 (Serial) COM Port One Docking Port (Hot Plug) One DC-In Jack
Buttons & Switches
Power Button, Notebook Eject Latch, Docking Lock Switch & HDD Backup Hotkey

Power
Full Range AC/DC 90W Adapter AC input 100 - 240V, 50 - 60Hz, DC Output 19V, 4.74A
Security
Security (Kensington® Type) Lock Slot
LED Indicators
Adapter Power/System System Operation Indicator
Environmental Spec
Temperature Operating: 5°C - 35°C Non-Operating: -20°C - 60°C Relative Humidity Operating: 20% - 80% Non-Operating: 10% - 90%
Dimensions & Weight
380mm (w) * 206mm (d) * 33mm (h) 0.85kg

E - 24 Specifications

Mustang W640R Notebook