

# Dell G5 5590

## Setup and Specifications



## Notes, cautions, and warnings

 **NOTE:** A NOTE indicates important information that helps you make better use of your product.

 **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

 **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

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# Set up your Dell G5 5590

**NOTE:** The images in this document may differ from your computer depending on the configuration you ordered.

1. Connect the power adapter and press the power button.



**NOTE:** To conserve battery power, the battery might enter power saving mode. Connect the power adapter and press the power button to turn on the computer.

2. Finish operating system setup.

## For Ubuntu:

Follow the on-screen instructions to complete the setup. For more information about installing and configuring Ubuntu, see the knowledge base articles [SLN151664](#) and [SLN151748](#) at [www.dell.com/support](http://www.dell.com/support).


## For Windows:




Follow the on-screen instructions to complete the setup. When setting up, Dell recommends that you:

- Connect to a network for Windows updates.
- **NOTE:** If connecting to a secured wireless network, enter the password for the wireless network access when prompted.
- If connected to the internet, sign-in with or create a Microsoft account. If not connected to the internet, create an offline account.
- On the **Support and Protection** screen, enter your contact details.

3. Locate and use Dell apps from the Windows Start menu—Recommended

**Table 1. Locate Dell apps**

Resources	Description
	<b>My Dell</b> Centralized location for key Dell applications, help articles, and other important information about your computer. It also notifies you about the warranty status, recommended accessories, and software updates if available.

Resources	Description
	<p><b>SupportAssist</b></p> <p>Pro-actively checks the health of your computer's hardware and software. The SupportAssist OS Recovery tool troubleshoots issues with the operating system. For more information, see the SupportAssist documentation at <a href="http://www.dell.com/support">www.dell.com/support</a>.</p> <p><b>NOTE:</b> In SupportAssist, click the warranty expiry date to renew or upgrade your warranty.</p>
	<p><b>Dell Update</b></p> <p>Updates your computer with critical fixes and latest device drivers as they become available. For more information about using Dell Update, see the knowledge base article <a href="https://www.dell.com/support/article/SLN305843">SLN305843</a> at <a href="http://www.dell.com/support">www.dell.com/support</a>.</p>
	<p><b>Dell Digital Delivery</b></p> <p>Download software applications, which are purchased but not pre-installed on your computer. For more information about using Dell Digital Delivery, see the knowledge base article <a href="https://www.dell.com/support/article/153764">153764</a> at <a href="http://www.dell.com/support">www.dell.com/support</a>.</p>

4. Create recovery drive for Windows.

**NOTE:** It is recommended to create a recovery drive to troubleshoot and fix problems that may occur with Windows.

For more information, see [Create a USB recovery drive for Windows](#).

# Create a USB recovery drive for Windows

Create a recovery drive to troubleshoot and fix problems that may occur with Windows. An empty USB flash drive with a minimum capacity of 16 GB is required to create the recovery drive.

**NOTE:** This process may take up to an hour to complete.

**NOTE:** The following steps may vary depending on the version of Windows installed. Refer to the [Microsoft support site](#) for latest instructions.

1. Connect the USB flash drive to your computer.
2. In Windows search, type **Recovery**.
3. In the search results, click **Create a recovery drive**.  
The **User Account Control** window is displayed.
4. Click **Yes** to continue.  
The **Recovery Drive** window is displayed.
5. Select **Back up system files to the recovery drive** and click **Next**.
6. Select the **USB flash drive** and click **Next**.  
A message appears, indicating that all data in the USB flash drive will be deleted.
7. Click **Create**.
8. Click **Finish**.  
For more information about reinstalling Windows using the USB recovery drive, see the *Troubleshooting* section of your product's *Service Manual* at [www.dell.com/support/manuals](http://www.dell.com/support/manuals).

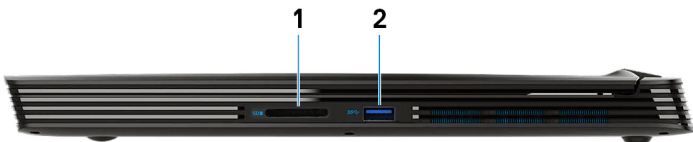
## Views of Dell G5 5590

### Front



1. **Left speaker**  
Provides audio output.
2. **Right speaker**  
Provides audio output.

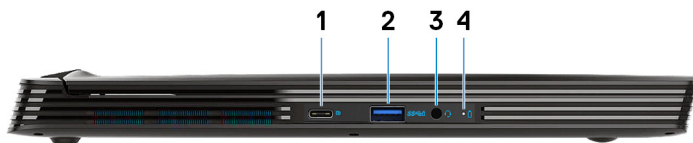
### Right



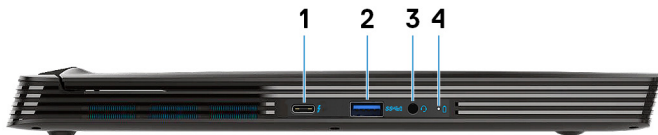
1. **SD-card slot**  
Reads from and writes to the SD card.
2. **USB 3.1 Gen 1 port**  
Connect peripherals such as external storage devices and printers. Provides data transfer speeds up to 5 Gbps.

### Left

Computers shipped with NVIDIA GeForce GTX 1050 Ti or GTX 1650



Computers shipped with NVIDIA GeForce RTX 2060 or RTX 2070 Max-Q



1. **USB 3.1 Gen 2 Type-C port**
  - **DisplayPort Alt-Mode (Only on computers shipped with graphics card NVIDIA GeForce GTX 1050 Ti or GTX 1650)**  
Connect peripherals such as external storage devices and printers.

Provides data transfer speeds up to 5 Gbps. PowerShare enables you to charge your USB devices even when your computer is turned off.

**NOTE:** If the charge on your computer's battery is less than 10 percent, you must connect the power adapter to charge your computer, and USB devices connected to the PowerShare port.

**NOTE:** If a USB device is connected to the PowerShare port before the computer is turned off or in hibernate state, you must disconnect and connect it again to enable charging.

**NOTE:** Certain USB devices may not charge when the computer is turned off or in sleep state. In such cases, turn on the computer to charge the device.

**Thunderbolt 3/DisplayPort (Only on computers shipped with graphics card NVIDIA GeForce RTX 2060 or RTX 2070 Max-Q)**

Supports USB 3.1 Gen 2 Type-C, DisplayPort 1.2, Thunderbolt 3 and also enables you to connect to an external display using a display adapter. Provides data transfer rates up to 10 Gbps for USB 3.1 Gen 2 and up to 40 Gbps for Thunderbolt 3.

**NOTE:** A USB Type-C to DisplayPort adapter (sold separately) is required to connect a DisplayPort device.

## 2. USB 3.1 Gen 1 port with PowerShare

Connect peripherals such as external storage devices and printers.

Provides data transfer speeds up to 5 Gbps. PowerShare enables you to charge connected USB devices.

**NOTE:** Connected USB devices will not charge when the computer is turned off or in sleep state. To start charging connected devices, turn on the computer.

## 3. Headset port

Connect headphones or a headset (headphone and microphone combo).

## 4. Battery-status light/Hard-drive activity light

Indicates the battery-charge status or the hard-drive activity.

**NOTE:** Hard-drive activity light is supported only on computers shipped with hard drive.

**NOTE:** Press Fn+H to toggle between the battery-status light and hard-drive activity light.

# Base



### 1. Left-click area

Press to left-click.

### 2. Touchpad

Move your finger on the touchpad to move the mouse pointer. Tap to left-click and two finger tap to right-click.

### 3. Right-click area

Press to right-click.



#### 4. Power button with optional fingerprint reader

Press to turn on the computer if it is turned off, in sleep state, or in hibernate state.

When the computer is turned on, press the power button to put the computer into sleep state; press and hold the power button for 10 seconds to force shut-down the computer.

If the power button has a fingerprint reader, place your finger on the power button to log in.

**NOTE:** You can customize power-button behavior in Windows. For more information, see *Me and My Dell* at [www.dell.com/support/manuals](http://www.dell.com/support/manuals).

**NOTE:** The power-status light on the power button is available only on computers without the fingerprint reader. Computers shipped with the fingerprint reader integrated on the power button will not have the power-status light on the power button.

**NOTE:** To reset the battery, press and hold the power button for 25 seconds.

## Display



#### 1. Left microphone

Provides digital sound input for audio recording and voice calls.

#### 2. Camera

Enables you to video chat, capture photos, and record videos.

#### 3. Camera-status light

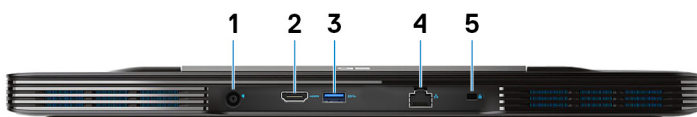
Turns on when the camera is in use.

#### 4. Right microphone

Provides digital sound input for audio recording and voice calls.

## Back

Computers shipped with NVIDIA GeForce GTX 1050 Ti or GTX 1650



#### 1. Power-adaptor port

Connect a power adaptor to provide power to your computer.

#### 2. HDMI port

Connect to a TV or another HDMI-in enabled device. Provides video and audio output.

**3. USB 3.1 Gen 1 port**

Connect peripherals such as external storage devices and printers. Provides data transfer speeds up to 5 Gbps.

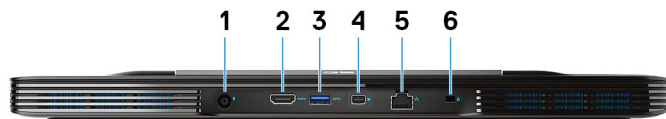
**4. Network port**

Connect an Ethernet (RJ45) cable from a router or a broadband modem for network or Internet access.

**5. Security-cable slot (wedge-shaped)**

Connect a security cable to prevent unauthorized movement of your computer.

**Computers shipped with NVIDIA GeForce RTX 2060, RTX 2070 Max-Q, or GTX 1660 Ti**



**1. Power-adapter port**

Connect a power adapter to provide power to your computer.

**2. HDMI port**

Connect to a TV or another HDMI-in enabled device. Provides video and audio output.

**3. USB 3.1 Gen 1 port**

Connect peripherals such as external storage devices and printers. Provides data transfer speeds up to 5 Gbps.

**4. Mini DisplayPort**

Connect to a TV or another DisplayPort-in enabled device. Provides video and audio output.

**NOTE:** Only on computers shipped with graphics card NVIDIA GeForce RTX 2060, RTX 2070 Max-Q, or GTX 1660 Ti.

**5. Network port**

Connect an Ethernet (RJ45) cable from a router or a broadband modem for network or Internet access.

**6. Security-cable slot (wedge-shaped)**

Connect a security cable to prevent unauthorized movement of your computer.

## Bottom



**1. Service Tag label**

The Service Tag is a unique alphanumeric identifier that enables Dell service technicians to identify the hardware components in your computer and access warranty information.

# Specifications of Dell G5 5590

## Dimensions and weight

Table 2. Dimensions and weight

Description	Values
Height:	
Front	23.70 mm (0.93 in.)
Rear	21.42 mm (0.84 in.)
Width	364.30 mm (14.34 in.)
Depth	273.40 mm (10.76 in.)
Weight	2.84 kg (6.27 lb)
<b>NOTE:</b> The weight of your computer depends on the configuration ordered and the manufacturing variability.	

## Processors

Table 3. Processors

Description	Values				
Processors	8 <sup>th</sup> Generation Intel Core i5-8300HQ	8 <sup>th</sup> Generation Intel Core i7-8750HQ	9 <sup>th</sup> Generation Intel Core i5-9300H	9 <sup>th</sup> Generation Intel Core i7-9750H	9 <sup>th</sup> Generation Intel Core i9-9980H
Wattage	45 W	45 W	45 W	45 W	45 W
Core count	4	6	4	6	8
Thread count	8	12	8	12	16
Speed	Up to 4.0 GHz	Up to 4.1 GHz	Up to 4.1 GHz	Up to 4.5 GHz	Up to 4.8 GHz
Cache	8 MB	9 MB	8 MB	12 MB	16 MB
Integrated graphics	Intel UHD Graphics 630	Intel UHD Graphics 630	Intel UHD Graphics 630	Intel UHD Graphics 630	Intel UHD Graphics 630


## Chipset

Table 4. Chipset

Description	Values	
Processor	8 <sup>th</sup> Generation Intel Core i5/i7	9 <sup>th</sup> Generation Intel Core i5/i7/i9
Chipset	HM370	HM370

Description		Values
DRAM bus width	64-bit	64-bit
Flash EPROM	16 MB	16 MB
PCIe bus	Up to Gen3.0	Up to Gen3.0
External bus frequency	Up to 4 GT/s	Up to 4 GT/s

# Operating system

- Windows 10 Home (64-bit)
  - Windows 10 Professional (64-bit)
  - Ubuntu
-  **NOTE:** The Ubuntu version varies with region.

# Memory

Table 5. Memory specifications

Description		Values
Slots		Two SODIMM slots
Type		DDR4
Speed		Up to 2666 MHz
Maximum memory		32 GB
Minimum memory		4 GB
Memory size per slot		4 GB, 8 GB, and 16 GB
Configurations supported		<ul style="list-style-type: none"> <li>• 4 GB DDR4 at 2666 MHz (1 x 4 GB)</li> <li>• 8 GB DDR4 at 2666 MHz (2 x 4 GB)</li> <li>• 8 GB DDR4 at 2666 MHz (1 x 8 GB)</li> <li>• 12 GB DDR4 at 2666 MHz (1 x 4 GB + 1 x 8 GB)</li> <li>• 16 GB DDR4 at 2666 MHz (2 x 8 GB)</li> <li>• 16 GB DDR4 at 2666 MHz (1 x 16 GB)</li> <li>• 32 GB DDR4 at 2666 MHz (2 x 16 GB)</li> </ul>

# Ports and connectors


Table 6. Ports and connectors

External:	
Network	One RJ-45 port

**External:**

USB	<ul style="list-style-type: none"> <li>One Thunderbolt 3 (USB 3.1 Gen 2 Type-C) port/DisplayPort (only on computers shipped with graphics card NVIDIA GeForce RTX 2060 or RTX 2070 Max-Q) <b>or</b> one USB 3.1 Gen 2 Type-C port with DisplayPort Alt-Mode (only on computers shipped with graphics card NVIDIA GeForce GTX 1050 Ti and GTX 1650)</li> <li>One mini DisplayPort (only on computers shipped with graphics card NVIDIA GeForce RTX 2060, RTX 2070 Max-Q, or GTX 1660 Ti)</li> <li>One USB 3.1 Gen 1 with PowerShare port</li> <li>Two USB 3.1 Gen 1 ports</li> </ul>
Audio	One headset (headphone and microphone combo) port
Video	One HDMI 2.0b port
Media card reader	One SD-card slot
Docking port	Supported through the USB Type-C port
Power adapter port	Supported
Security	Wedge-shaped lock slot

**Internal:**

M.2	<ul style="list-style-type: none"> <li>One PCIe NVMe Gen 3x2 slot for M.2 2230 solid-state drive, one PCIe NVMe Gen 3x4 slot for 2280 solid-state drive, or Intel Optane memory</li> <li>One PCIe Gen 3x2 slot for Wi-Fi and Bluetooth combo card</li> </ul> <p> <b>NOTE:</b> To learn more about the features of different types of M.2 cards, see the knowledge base article <a href="#">SLN301626</a>.</p>
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## Communications

**Ethernet****Table 7. Ethernet specifications**

Description	Values
Model number	<ul style="list-style-type: none"> <li>Realtek GB LAN for GTX 1050 Ti</li> <li>Killer GB E2500V2 for RTX 2060 or RTX 2070 Max-Q</li> </ul>
Transfer rate	10/100/1000 Mbps

**Wireless module****Table 8. Wireless module specifications**

Description	Values		
Model number	Qualcomm QCA61x4A (DW1820)	Intel 9560 2x2 ac (Intel 9560 2x2 ac (80 MHz)	Rivet Killer 1550 2x2 ac
Transfer rate	Up to 867 Mbps	Up to 867 Mbps	Up to 1.73 Gbps

Description	Values		
Frequency bands supported	Dual band 2.4 GHz/5 GHz	Dual band 2.4 GHz/5 GHz	Dual band 2.4 GHz/5 GHz
Wireless standards	<ul style="list-style-type: none"> <li>• WiFi 802.11a/b/g</li> <li>• Wi-Fi 4 (WiFi 802.11n)</li> <li>• Wi-Fi 5 (WiFi 802.11ac)</li> </ul>	<ul style="list-style-type: none"> <li>• WiFi 802.11a/b/g</li> <li>• Wi-Fi 4 (WiFi 802.11n)</li> <li>• Wi-Fi 5 (WiFi 802.11ac)</li> </ul>	<ul style="list-style-type: none"> <li>• WiFi 802.11a/b/g</li> <li>• Wi-Fi 4 (WiFi 802.11n)</li> <li>• Wi-Fi 5 (WiFi 802.11ac)</li> </ul>
Encryption	<ul style="list-style-type: none"> <li>• 64-bit/128-bit WEP</li> <li>• AES-CCMP</li> <li>• TKIP</li> </ul>	<ul style="list-style-type: none"> <li>• 64-bit/128-bit WEP</li> <li>• AES-CCMP</li> <li>• TKIP</li> </ul>	<ul style="list-style-type: none"> <li>• 64-bit/128-bit WEP</li> <li>• AES-CCMP</li> <li>• TKIP</li> </ul>
Bluetooth	Bluetooth 4.2  <b>NOTE: Bluetooth 4.2 is supported by the latest Windows 10 update.</b>	Bluetooth 5.0  <b>NOTE: Bluetooth 5.0 is supported by the latest Windows 10 update.</b>	Bluetooth 5.0  <b>NOTE: Bluetooth 5.0 is supported by the latest Windows 10 update.</b>

## Audio

**Table 9. Audio specifications**

Description	Values
Controller	Realtek ALC3254-CG with support for nahimic audio
Stereo conversion	Supported
Internal interface	High-definition audio interface
External interface	<ul style="list-style-type: none"> <li>• Universal audio jack that supports headset/headphone/line-out/microphone/line-in functions</li> <li>• Digital-array microphone in camera assembly</li> </ul>
Speakers	Two
Internal speaker amplifier	Supported
External volume controls	Supported through <a href="#">keyboard shortcuts</a>
Speaker output:	
Average	2 W
Peak	2.5 W
Subwoofer output	Not supported
Microphone	One

## Storage

Your computer supports one of the following configurations:

- One 2.5-inch hard-disk drive
- One M.2 2230 solid-state drive or one M.2 2280 solid-state drive
- One 2.5-inch hard-disk drive and one M.2 2280 solid-state drive
- One 2.5-inch hard-disk drive and one M.2 Intel Optane memory

 **NOTE: The primary drive of your computer varies with the storage configuration.**

For computers:

- with an M.2 drive, the M.2 drive is the primary drive
- without an M.2 drive, the 2.5-inch hard-disk drive is the primary drive

**Table 10. Storage specifications**

Form factor	Interface type	Capacity
One 2.5-inch Hard-Disk Drive (HDD) <b>i NOTE: Hard-disk drive is supported only on the computers shipped with 4-cell battery configuration</b>	SATA	<ul style="list-style-type: none"><li>• 500 GB (7200 RPM)</li><li>• 1 TB (5400 RPM)</li><li>• 2 TB (5400 RPM)</li><li>• 1 TB (5400 RPM) + 8 GB hybrid drive</li></ul>
One M.2 2230 solid-state drive	PCIe NVMe 3x2 Class 35	Up to 512 GB
One M.2 2280 solid-state drive	PCIe NVMe 3x4 Class 40	Up to 1 TB

## Intel Optane memory

Intel Optane memory functions only as a storage accelerator. It neither replaces nor adds to the memory (RAM) installed on your computer.

**i NOTE: Intel Optane memory is supported on computers that meet the following requirements:**

- 7<sup>th</sup> Generation or higher Intel Core i3/i5/i7 processor
- Windows 10 64-bit version or higher (Anniversary Update)
- Latest version of Intel Rapid Storage Technology driver

**Table 11. Intel Optane memory**

Description	Values
Type	Storage accelerator
Interface	PCIe NVMe 3.0x2 or 3.0x4
Connector	M.2 2280
Configurations supported	16 GB and 32 GB
Capacity	Up to 32 GB

## Media-card reader

**Table 12. Media-card reader specifications**

Description	Values
Type	One SD-card slot
Cards supported	<ul style="list-style-type: none"><li>• Secure Digital (SD)</li><li>• Secure Digital High Capacity (SDHC)</li><li>• SD Extended Capacity (SDXC)</li></ul>

# Keyboard

Table 13. Keyboard specifications

Description	Values
Type	<ul style="list-style-type: none"><li>Standard non-backlit keyboard</li><li>Backlit keyboard (optional)</li><li>Four-zone RGB keyboard (optional)</li></ul>
Layout	QWERTY
Number of keys	<ul style="list-style-type: none"><li>United States and Canada: 101 keys</li><li>United Kingdom: 102 keys</li><li>Japan: 105 keys</li></ul>
Size	X = 19.05 mm key pitch Y = 18.05 mm key pitch
Shortcut keys	For more information on shortcut keys, see <a href="#">Keyboard shortcuts</a> .

# Camera

Table 14. Camera specifications

Description	Values
Number of cameras	One
Type	HD RGB camera
Location	Front
Sensor type	CMOS sensor technology
Resolution:	
Still image	0.92 megapixel (HD)
Video	1280 x 720 (HD) at 30 fps
Diagonal viewing angle	78.6 degrees

# Touchpad

Table 15. Touchpad specifications

Description	Values
Resolution:	
Horizontal	1229 pixels
Vertical	929 pixels
Dimensions:	
Horizontal	105 mm (4.13 in.)
Vertical	80 mm (3.15 in.)



## Touchpad gestures

For more information about touchpad gestures for Windows 10, see the Microsoft knowledge base article [4027871](https://support.microsoft.com/4027871) at [support.microsoft.com](https://support.microsoft.com).

## Power adapter

Table 16. Power adapter specifications

Description	Values	
Type	130 W	180 W
Diameter (connector)	7.4 mm	7.4 mm
Input voltage	100 VAC-240 VAC	100 VAC-240 VAC
Input frequency	50 Hz-60 Hz	50 Hz-60 Hz
Input current (maximum)	1.80 A/2.50 A	2.34 A
Output current (continuous)	6.70 A	9.23 A
Rated output voltage	19.50 VDC	19.50 VDC
Temperature range:		
Operating	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)

## Hybrid Power

The Hybrid Power feature enables the system to function optimally during instances of heavy loading, such as graphics and processor-intensive gaming. It does so by coordinating the power input from the power adapter and the battery. This feature is enabled as long as the battery capacity is above 10%.


When the Hybrid Power feature is enabled, these events may occur:

- Battery charge does not increase when connected to the power adapter.
- Battery charges slowly when connected to the power adapter.
- Battery charge depletes when connected to the power adapter.

When the battery charge depletes below 10%, Hybrid Power is disabled, and this may lead to a drop in system performance. Battery charging resumes immediately when the computer is no longer under heavy loading.

## Battery

Table 17. Battery specifications

Description	Values	Values
Type	4-cell "smart" lithium-ion/polymer (60 WHr)	6-cell "smart" lithium-ion/polymer (90 WHr)
 <b>NOTE:</b> Hard-disk drive configuration is available only on the computers that are shipped with 4-cell battery.		
Voltage	15.20 VDC	11.40 VDC
Weight (maximum)	0.25 kg (0.556 lb)	0.37 kg (0.82 lb)

Description	Values	Values
Dimensions:		
Height	11.60 mm (0.46 in.)	11.60 mm (0.46 in.)
Width	222.20 mm (8.75 in.)	332.65 mm (13.10 in.)
Depth	74.20 mm (2.92 in.)	74.20 mm (2.92 in.)
Temperature range:		
Operating	0°C to 35°C (32°F to 95°F)	0°C to 35°C (32°F to 95°F)
Storage	–40°C to 65°C (–40°F to 149°F)	–40°C to 65°C (–40°F to 149°F)
Operating time	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.
Charging time (approximate)	4 hours (when the computer is off) <b>NOTE:</b> Control the charging time, duration, start and end time, and so on using the Dell Power Manager application. For more information on the Dell Power Manager see, <i>Me and My Dell</i> on <a href="https://www.dell.com/">https://www.dell.com/</a>	4 hours (when the computer is off) <b>NOTE:</b> Control the charging time, duration, start and end time, and so on using the Dell Power Manager application. For more information on the Dell Power Manager see, <i>Me and My Dell</i> on <a href="https://www.dell.com/">https://www.dell.com/</a>
Life span (approximate)	300 discharge/charge cycles	300 discharge/charge cycles
Coin-cell battery	CR-2032	CR-2032
Operating time	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.

## Display

**Table 18. Display specifications**

Description	Values
Type	Full High Definition (FHD)
Panel technology	Wide Viewing Angle (WVA)
Luminance (typical)	<ul style="list-style-type: none"> <li>220 nits</li> <li>300 nits at 60 Hz (optional)</li> <li>300 nits at 144 Hz (optional)</li> </ul>
Dimensions (active area):	
Height	193.59 mm (7.62 in.)
Width	344.16 mm (13.55 in.)
Diagonal	394.87 mm (15.55 in.)
Native resolution	1920 x 1080
Megapixels	2.07

Description	Values
Pixels Per Inch (PPI)	141
Contrast ratio (min)	600:1
Response time (max)	<ul style="list-style-type: none"> <li>• 220 nits at 60 Hz: 25 msec</li> <li>• 300 nits at 60 Hz (optional): 25 msec</li> <li>• 300 nits at 144 Hz (optional): 9 msec</li> </ul>
Refresh rate	<ul style="list-style-type: none"> <li>• 60 Hz</li> <li>• 144 Hz (optional)</li> </ul>
Horizontal view angle	+/- 85 degrees
Vertical view angle	+/- 85 degrees
Pixel pitch	0.179 mm
Power consumption (maximum)	<ul style="list-style-type: none"> <li>• 220 nits at 60 Hz: 4.2 W</li> <li>• 300 nits at 60 Hz (optional): 6.2 W</li> <li>• 300 nits at 144 Hz (optional): 7.8 W</li> </ul>
Anti-glare vs glossy finish	Anti-glare
Touch options	Not supported

## Fingerprint reader (optional)

**Table 19. Fingerprint reader specifications**

Description	Values
Sensor technology	Capacitive
Sensor resolution	500 dpi
Sensor area	5.50 mm x 4.50 mm (0.22 in. x 0.18 in.)
Sensor pixel size	108 x 88 pixels

## Video

**Table 20. Discrete graphics specifications**

Discrete graphics			
Controller	External display support	Memory size	Memory Type
NVIDIA GeForce RTX 2060	<ul style="list-style-type: none"> <li>• HDMI 2.0b port</li> <li>• mini DisplayPort 1.4</li> </ul>	6 GB	GDDR6
NVIDIA GeForce RTX 2070 Max-Q	<ul style="list-style-type: none"> <li>• HDMI 2.0b port</li> <li>• mini DisplayPort 1.4</li> </ul>	8 GB	GDDR6
NVIDIA GeForce GTX 1660 Ti	<ul style="list-style-type: none"> <li>• HDMI 2.0b port</li> <li>• mini DisplayPort 1.4</li> </ul>	6 GB	GDDR6
NVIDIA GeForce GTX 1050 Ti	HDMI 2.0b port	4 GB	GDDR5

**Discrete graphics**

Controller	External display support	Memory size	Memory Type
NVIDIA GeForce GTX 1650	HDMI 2.0b port	4 GB	GDDR5

**Table 21. Integrated graphics specifications**

**Integrated graphics**

Controller	External display support	Memory size	Processor
Intel UHD Graphics 630	One DisplayPort and one HDMI port	Shared system memory	8 <sup>th</sup> Generation Intel Core i5/i7

**Computer environment**

**Airborne contaminant level:** G1 as defined by ISA-S71.04-1985

**Table 22. Computer environment**

	Operating	Storage
Temperature range	0°C to 35°C (32°F to 95°F)	–40°C to 65°C (–40°F to 149°F)
Relative humidity (maximum)	10% to 90% (non-condensing)	0% to 95% (non-condensing)
Vibration (maximum)*	0.66 GRMS	1.30 GRMS
Shock (maximum)	110 G†	160 G‡
Altitude (maximum)	–15.2 m to 3,048 m (–50 ft to 10,000 ft)	–15.2 m to 10,668 m (–50 ft to 35,000 ft)

\* Measured using a random vibration spectrum that simulates user environment.

† Measured using a 2 ms half-sine pulse when the hard drive is in use.

‡ Measured using a 2 ms half-sine pulse when the hard-drive head is in parked position.

# Keyboard shortcuts

**NOTE:** Keyboard characters may differ depending on the keyboard language configuration. Keys used for shortcuts remain the same across all language configurations.























Some keys on your keyboard have two symbols on them. These keys can be used to type alternate characters or to perform secondary functions. The symbol shown on the lower part of the key refers to the character that is typed out when the key is pressed. If you press shift and the key, the symbol shown on the upper part of the key is typed out. For example, if you press **2**, 2 is typed out; if you press **Shift + 2**, @ is typed out.

The keys F1-F12 at the top row of the keyboard are function keys for multi-media control, as indicated by the icon at the bottom of the key. Press the function key to invoke the task represented by the icon. For example, pressing F1 mutes the audio (refer to the table below).

However, if the function keys F1-F12 are needed for specific software applications, multi-media functionality can be disabled by pressing **Fn + Esc**. Subsequently, multi-media control can be invoked by pressing **Fn** and the respective function key. For example, mute audio by pressing **Fn + F1**.


**NOTE:** You can also define the primary behavior of the function keys (F1–F12) by changing Function Key Behavior in BIOS setup program.























**Table 23. List of keyboard shortcuts**

Function key	Re-defined key (for multi-media control)	Behavior
		Mute audio
		Decrease volume
		Increase volume
		Play previous track/chapter
		Play/Pause
		Play next track/chapter
		Switch to external display
		Search
		Toggle keyboard backlight (optional)
		Decrease brightness
		Increase brightness

The **Fn** key is also used with selected keys on the keyboard to invoke other secondary functions.

**Table 24. List of keyboard shortcuts**

Function key	Behavior
	Turn off/on wireless



Function key	Behavior
 + 	Pause/Break
 + 	Sleep
 + 	Toggle scroll lock
 + 	Toggle between power and battery-status light/hard-drive activity light
 + 	System request
 + 	Open application menu
 + 	Toggle Fn-key lock
 + 	Page up
 + 	Page down
 + 	Home
 + 	End

# Getting help and contacting Dell

## Self-help resources

You can get information and help on Dell products and services using these self-help resources:


**Table 25. Self-help resources**

Self-help resources	Resource location
Information about Dell products and services	<a href="http://www.dell.com">www.dell.com</a>
My Dell	
Tips	
Contact Support	In Windows search, type <b>Contact Support</b> , and press Enter.
Online help for operating system	<a href="http://www.dell.com/support/windows">www.dell.com/support/windows</a> <a href="http://www.dell.com/support/linux">www.dell.com/support/linux</a>
Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on.	<a href="http://www.dell.com/support">www.dell.com/support</a>
Dell knowledge base articles for a variety of computer concerns.	<ol style="list-style-type: none"> <li>1. Go to <a href="http://www.dell.com/support">www.dell.com/support</a>.</li> <li>2. Type the subject or keyword in the <b>Search</b> box.</li> <li>3. Click <b>Search</b> to retrieve the related articles.</li> </ol>
Learn and know the following information about your product: <ul style="list-style-type: none"> <li>• Product specifications</li> <li>• Operating system</li> <li>• Setting up and using your product</li> <li>• Data backup</li> <li>• Troubleshooting and diagnostics</li> <li>• Factory and system restore</li> <li>• BIOS information</li> </ul>	See <i>Me and My Dell</i> at <a href="http://www.dell.com/support/manuals">www.dell.com/support/manuals</a> .  To locate the <i>Me and My Dell</i> relevant to your product, identify your product through one of the following: <ul style="list-style-type: none"> <li>• Select <b>Detect Product</b>.</li> <li>• Locate your product through the drop-down menu under <b>View Products</b>.</li> <li>• Enter the <b>Service Tag number</b> or <b>Product ID</b> in the search bar.</li> </ul>

## Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see [www.dell.com/contactdell](http://www.dell.com/contactdell).

 **NOTE:** Availability varies by country/region and product, and some services may not be available in your country/region.

 **NOTE:** If you do not have an active internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.