


# Precision 3581

## Owner's Manual

## 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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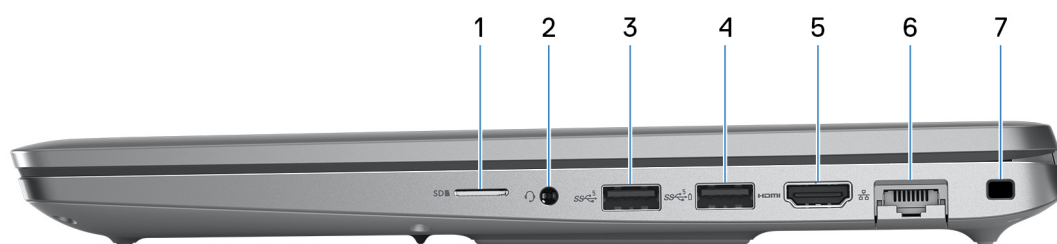
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## Views of Precision 3581

### Right



#### 1. microSD-card slot

Reads from and writes to the microSD-card.

#### 2. Universal audio jack

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

#### 3. USB 3.2 Gen 1 port

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

#### 4. USB 3.2 Gen 1 port with PowerShare

Connect devices 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.

#### 5. HDMI 2.0 port

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

#### 6. Network port

Connect an Ethernet (RJ-45) cable from a router or a broadband modem for network or Internet access, with a transfer rate of 10/100/1000 Mbps.

#### 7. Security-cable slot (wedge-shaped)

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



# Left



## 1. Thunderbolt 4.0 port with Power Delivery and DisplayPort

Supports USB4, DisplayPort 1.4, Thunderbolt 4 and also enables you to connect to an external display using a display adapter. Provides data transfer rates of up to 40 Gbps for USB4 and Thunderbolt 4.

**NOTE:** You can connect a Dell Docking Station to the Thunderbolt 4 ports. For more information, search in the Knowledge Base Resource at [www.dell.com/support](http://www.dell.com/support).

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

**NOTE:** USB4 is backward compatible with USB 3.2, USB 2.0, and Thunderbolt 3.

**NOTE:** Thunderbolt 4 supports two 4K displays or one 8K display.

## 2. Thunderbolt 4.0 port with Power Delivery and DisplayPort

Supports USB4, DisplayPort 1.4, Thunderbolt 4 and also enables you to connect to an external display using a display adapter. Provides data transfer rates of up to 40 Gbps for USB4 and Thunderbolt 4.

**NOTE:** You can connect a Dell Docking Station to the Thunderbolt 4 ports. For more information, search in the Knowledge Base Resource at [www.dell.com/support](http://www.dell.com/support).

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

**NOTE:** USB4 is backward compatible with USB 3.2, USB 2.0, and Thunderbolt 3.

**NOTE:** Thunderbolt 4 supports two 4K displays or one 8K display.

## 3. Battery-status light

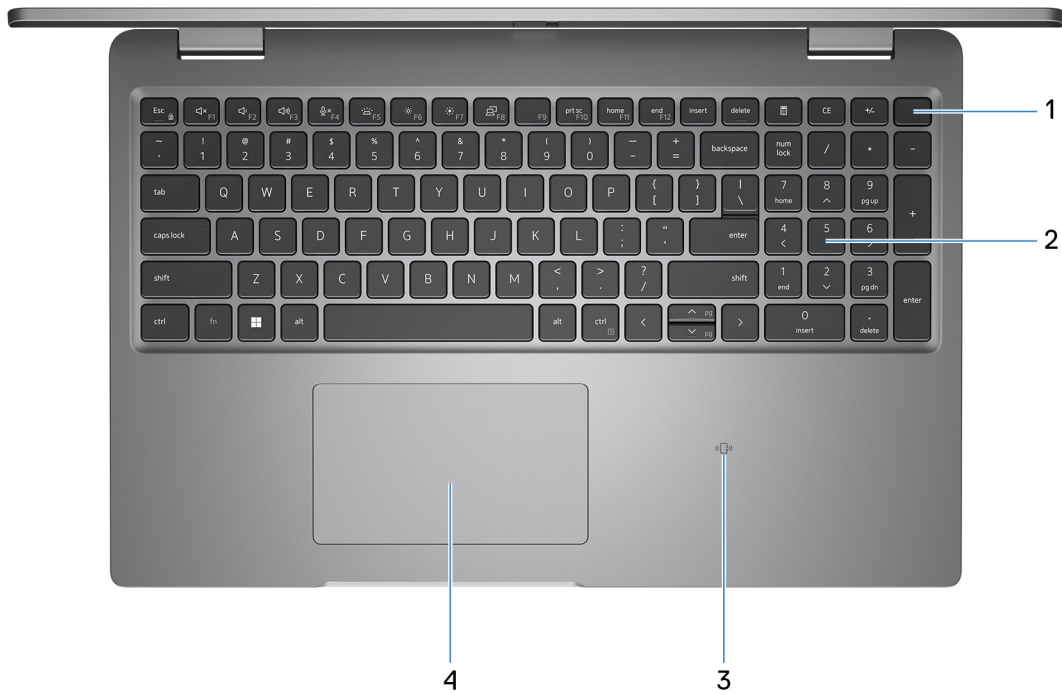
Indicates the battery-charge status.

Solid yellow—Battery charge is low.

Blinking yellow—Battery charge is critical.

## 4. Smart-card reader slot (optional)

# Top



## 1. 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 steadily to log in.

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

**NOTE:** You can customize the power-button behavior in Windows.

## 2. Keyboard

### 3. NFC/Contactless smart card reader (optional)

Provides contactless access of cards in corporate networks.

## 4. Touchpad

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

# Display



**1. Left microphone**

Provides digital sound input for audio recording and voice calls.

**2. Infrared emitter (optional)**

Emits infrared light, which enables the infrared camera to sense and track motion.

**3. Infrared camera (optional)**

Enhances security when paired with Windows Hello face authentication.

**4. Camera shutter**

Slide the privacy shutter to the left to access the camera lens.

**5. Camera**

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

**6. Camera-status light**

Turns on when the camera is in use.

**7. Ambient-light sensor**

The sensor detects the ambient light and automatically adjusts the display brightness.

**8. Right microphone**

Provides digital sound input for audio recording and voice calls.

## Back

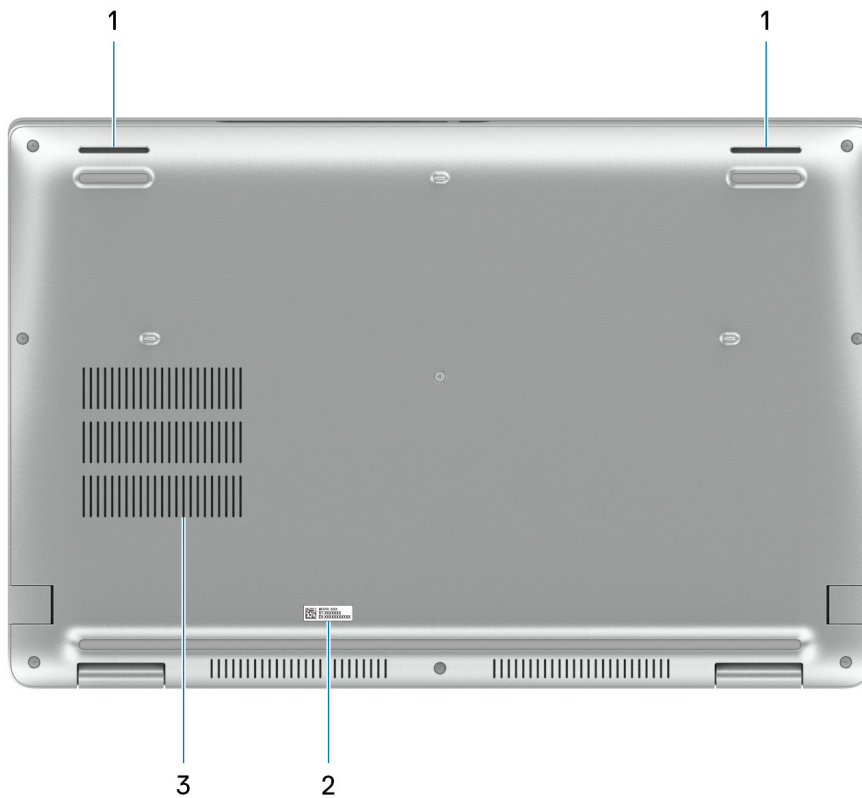


### 1. Nano-SIM card slot (optional)

Insert a nano-SIM card to connect to a mobile broadband network.

**i** **NOTE:** Availability of the nano-SIM card slot depends on the region and configuration ordered.

## Bottom



### 1. Speakers

Provide audio output.

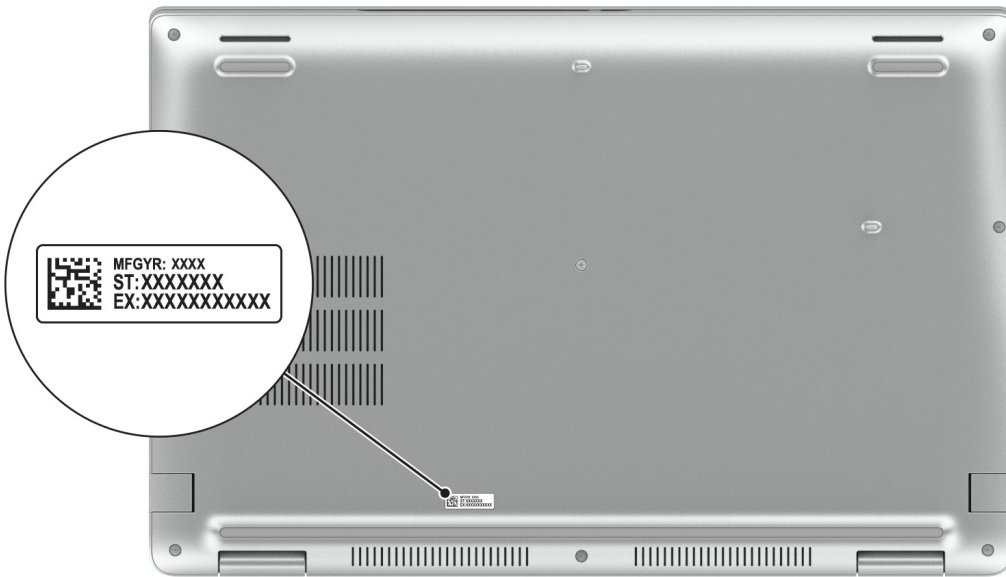
### 2. Service Tag label

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.

### 3. Fan vents

# Service Tag

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



# Battery charge and status light

The following table lists the battery charge and status light behavior of your Precision 3581.

**Table 1. Battery charge and status light behavior**

Power Source	LED Behavior	System Power State	Battery Charge Level
AC Adapter	Off	S0 - S5	Fully Charged
AC Adapter	Solid White	S0 - S5	< Fully Charged
Battery	Off	S0 - S5	11-100%
Battery	Solid Amber (590+/-3 nm)	S0 - S5	< 10%

- S0 (ON) - System is turned on.
- S4 (Hibernate) - The system consumes the least power compared to all other sleep states. The system is almost at an OFF state, except for a trickle power. The context data is written to hard drive.
- S5 (OFF) - The system is in a shutdown state.

# Set up your Precision 3581

## About this task

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

## Steps

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, search in the Knowledge Base Resource 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 2. Locate Dell apps**


Resources	Description
	<p><b>Dell Product Registration</b> Register your computer with Dell.</p>
	<p><b>Dell Help &amp; Support</b> Access help and support for your computer.</p>
	<p><b>SupportAssist</b> SupportAssist is the smart technology that keeps your computer running at its best by optimizing settings, detecting issues, removing viruses and notifies when you need to make system updates. SupportAssist proactively checks the health of your system's hardware and software. When an issue is detected, the necessary system state information is sent to Dell to begin troubleshooting. SupportAssist is preinstalled on most of the Dell devices running Windows operating system. For more information, see SupportAssist for Home PCs User's Guide on <a href="http://www.dell.com/serviceabilitytools">www.dell.com/serviceabilitytools</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> Updates your computer with critical fixes and latest device drivers as they become available. For more information on using Dell Update, search in the Knowledge Base Resource at <a href="http://www.dell.com/support">www.dell.com/support</a>.</p>
	<p><b>Dell Digital Delivery</b> Download software applications, which are purchased but not preinstalled on your computer. For more information on using Dell Digital Delivery, search in the Knowledge Base Resource at <a href="http://www.dell.com/support">www.dell.com/support</a>.</p>

# Specifications of Precision 3581

## Dimensions and weight

The following table lists the height, width, depth, and weight of your Precision 3581.

**Table 3. Dimensions and weight**


Description	Values
Height:	
Front height	22.70mm (0.89 in.)
Rear height	24.70mm(0.97 in.)
Width	357.80 mm (14.09 in.)
Depth	233.30 mm (9.19 in.)
Weight  <b>NOTE:</b> The weight of your computer depends on the configuration ordered and manufacturing variability.	1.795 kg (3.96 lb)

## Processor

The following table lists the details of the processors supported by your Precision 3581.



**Table 4. Processor**

Description	Option one	Option two	Option three	Option four	Option five
Processor type	13 <sup>th</sup> Generation Intel Core i5-13600H Intel vPro Enterprise	13 <sup>th</sup> Generation Intel Core i7-13700H Intel vPro Essentials	13 <sup>th</sup> Generation Intel Core i7-13800H Intel vPro Enterprise	13 <sup>th</sup> Generation Intel Core i9-13900H Intel vPro Enterprise	
Processor wattage	45 W	45 W	45 W	45 W	45 W
Processor total core count	12	14	14	14	14
Performance-cores	4	6	6	6	6
Efficient-cores	8	8	8	8	8
Processor total thread counts	16	20	20	20	20
 <b>NOTE:</b> Intel® Hyper-Threading Technology is only available on Performance-cores.					
Processor speed	Up to 4.80 GHz	Up to 5 GHz	Up to 5.20 GHz	Up to 5.40 GHz	Up to 5.40 GHz
Performance-cores frequency					
Processor base frequency	2.80 GHz	2.40 GHz	2.50 Ghz	2.60 GHz	2.60 GHz
Maximum turbo frequency	4.80 GHz	5 GHz	5.20 Ghz	5.40 GHz	5.40 GHz
Efficient-cores frequency					
Processor base frequency	2.10 GHz	1.80 GHz	1.80 Ghz	1.90 GHz	1.90 GHz
Maximum turbo frequency	3.60 GHz	3.70 GHz	4 Ghz	4.10 GHz	4.10 GHz
Processor cache	18 MB	24 MB	24 MB	24 MB	24 MB
Integrated graphics	Intel Iris Xe Graphics	Intel Iris Xe Graphics	Intel Iris Xe Graphics	Intel Iris Xe Graphics	Intel Iris Xe Graphics

## Chipset

The following table lists the details of the chipset supported by your Precision 3581.

**Table 5. Chipset**

Description	Values
Chipset	Integrated in the processor

**Table 5. Chipset (continued)**

Description	Values
Processor	13 <sup>th</sup> Generation Intel Core i5/i7/i9
DRAM bus width	64-bit
Flash EPROM	32 MB+16 MB for vPro
PCIe bus	Up to Gen 4

## Operating system

Your Precision 3581 supports the following operating systems:

- Windows 11 Home, 64-bit, Windows 10 downgrade capable
- Windows 11 Pro, 64-bit
- Windows 10 China G-SKU, 64-bit
- Ubuntu 22.04 LTS, 64-bit

## Memory

The following table lists the memory specifications of your Precision 3581.

**Table 6. Memory specifications**

Description	Values
Memory slots	Two-SODIMM slots
Memory type	<ul style="list-style-type: none"> <li>• Single-channel DDR5</li> <li>• Dual-channel DDR5</li> </ul>
Memory speed	<ul style="list-style-type: none"> <li>• 4800 MT/s</li> <li>• 5200 MT/s</li> </ul>
Maximum memory configuration	64 GB
Minimum memory configuration	8 GB
Memory size per slot	8 GB, 16 GB, or 32 GB
Memory configurations supported	<ul style="list-style-type: none"> <li>• 8 GB, 1 x 8 GB, DDR5, 4800 MT/s, single-channel</li> <li>• 16 GB, 2 x 8 GB, DDR5, 4800 MT/s, dual-channel</li> <li>• 16 GB, 1 x 16 GB, DDR5, 4800 MT/s, single-channel</li> <li>• 32 GB, 2 x 16 GB, DDR5, 4800 MT/s, dual-channel</li> <li>• 64 GB, 2 x 32 GB, DDR5, 4800 MT/s, dual-channel</li> <li>• 8 GB, 1 x 8 GB, DDR5, 5200 MT/s, single-channel</li> <li>• 16 GB, 2 x 8 GB, DDR5, 5200 MT/s, dual-channel</li> <li>• 16 GB, 1 x 16 GB, DDR5, 5200 MT/s, single-channel</li> <li>• 32 GB, 2 x 16 GB, DDR5, 5200 MT/s, dual-channel</li> <li>• 64 GB, 2 x 32 GB, DDR5, 5200 MT/s, dual-channel</li> </ul>

## External ports

The following table lists the external ports of your Precision 3581.

**Table 7. External ports**

Description	Values
Network port	One RJ-45 port
USB ports	<ul style="list-style-type: none"><li>Two Thunderbolt 4 port with DisplayPort Alt Mode/USB Type-C/USB4/Power Delivery</li></ul> <p><b>NOTE:</b> You can connect a Dell Docking Station to this port. For more information, search in the Knowledge Base Resource at <a href="http://www.dell.com/support">www.dell.com/support</a>.</p> <ul style="list-style-type: none"><li>One USB 3.2 Gen 1 port with PowerShare</li><li>One USB 3.2 Gen 1 port</li></ul>
Audio port	One Universal audio jack
Video port	One HDMI 2.0 port
Media-card reader	One smart card reader slot (optional)
Power-adaptor port	Type-C adaptor
Security-cable slot	One security-cable slot (wedge-shaped)

## Internal slots

The following table lists the internal slots of your Precision 3581.

**Table 8. Internal slots**

Description	Values
M.2	<ul style="list-style-type: none"><li>One M.2 2230 slot for WiFi and Bluetooth combo card</li><li>Two M.2 2230/2280 slot for solid-state drive</li><li>One M.2 3042/3052 slot for WWAN (optional)</li></ul> <p><b>NOTE:</b> To learn more about the features of different types of M.2 cards, search in the Knowledge Base Resource at <a href="http://www.dell.com/support">www.dell.com/support</a>.</p>

## Ethernet

The following table lists the wired Ethernet Local Area Network (LAN) specifications of your Precision 3581.


**Table 9. Ethernet specifications**

Description	Values
Model number	Intel I219-LM
Transfer rate	10/100/1000 Mbps

## Wireless module

The following table lists the Wireless Local Area Network (WLAN) modules that are supported on your Precision 3581.

**Table 10. Wireless module specifications**

Description	Option one	Option two
Model number	Realtek RTL8852BE	Intel AX211
Transfer rate	Up to 1201 Mbps	Up to 2400 Mbps
Frequency bands supported	2.4 GHz/5 GHz	2.4 GHz/5 GHz/6 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> <li>• Wi-Fi 6 (WiFi 802.11ax)</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> <li>• Wi-Fi 6E (WiFi 802.11ax)</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>
Bluetooth wireless card	Bluetooth wireless card	Bluetooth wireless card
	 <b>NOTE:</b> The version of the Bluetooth wireless card may vary depending on the operating system that is installed on your computer.	


## WWAN module

The following table lists the Wireless Wide Area Network (WWAN) module supported on your Precision 3581.

**Table 11. WWAN module specifications**

Description	Option one	Option two
Model number	DW5823, Intel XMM 7560 R Global LTE-Advanced, CAT16	5G DW5931e, Intel 5G 5000 Global Gigabit NR/LTE, 3GPP Release 15
Form factor	M.2 3042 Key-B	M.2 3042 Key-B
Host interface	PCIe Gen2	PCIe Gen3
Network standard	LTE FDD/TDD, WCDMA/HSPA+,GPS/GLONASS/BDS/Galileo	LTE FDD/TDD, WCDMA/HSPA+, GNSS/Beidou NR FR1(Sub6) FDD/TDD, LTE FDD/TDD, WCDMA/HSPA+, GPS/GLONASS/Galileo/BDS/QZSS
Transfer data rate	<ul style="list-style-type: none"> <li>• Up to 1 Gbps DL (CAT16)</li> <li>• Up 150 Mbps UL</li> </ul>	<ul style="list-style-type: none"> <li>• SA: DL 4.67Gbps/UL 1.25Gbps</li> <li>• NSA: DL 3.74Gbps/UL 700Mbps</li> <li>• LTE: DL 1.6Gbps (CAT19)/UL 150Mbps</li> <li>• UMTS: DL 384 kbps/UL 384 kbps</li> <li>• DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7)</li> </ul>

**Table 11. WWAN module specifications (continued)**

Description	Option one	Option two
Operating frequency bands	<ul style="list-style-type: none"> <li>• LTE(B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41(HPUE), B42, B43, B46(receiver only), B48, B66, B71</li> <li>• WCDMA/HSPA+(1, 2, 4, 5, 8)</li> </ul>	<ul style="list-style-type: none"> <li>• NR(n1, n2, n3, n5, n7, n8, n20, n25, n28, n30, n38, n40, n41, n48, n66, n71, n77, n78, n79)</li> <li>• LTE (B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46, B48, B66, B71*)</li> <li>• WCDMA/HSPA+ (1, 2, 4, 5, 8)</li> </ul>
Power supply	DC 3.135 V to 4.40 V, typical 3.30 V	DC 3.135 V to 4.4 V, Typical 3.3 V
SIM card	Supported through external SIM slot	Supported through external SIM slot
eSIM with dual SIM (DSSA)	Supported (the availability of eSIM functionality embedded on the module is dependent on the region and specific carrier requirements)	Supported
Antenna diversity	Supported	Supported
Radio On/Off	Supported	Supported
Wake on wireless	Supported	Supported
Temperature	<ul style="list-style-type: none"> <li>• Normal operating temperature: -10°C to + 55°C</li> <li>• Extended Operating temperature: -20°C to +65°C</li> </ul>	<ul style="list-style-type: none"> <li>• Normal operating temperature: -10°C to + 55°C</li> <li>• Extended Operating temperature: -30°C to +75°C</li> <li>• Storage temperature: -40°C to +85°C</li> </ul>
Antenna connector	<ul style="list-style-type: none"> <li>• WWAN Main Antenna x 4</li> <li>• Supports 4x4 MIMO</li> </ul>	<ul style="list-style-type: none"> <li>• WWAN Main Antenna x 4</li> <li>• Supports 4x4 MIMO</li> </ul>
 <b>NOTE:</b> For instructions on how to find your computer's IMEI (International Mobile Equipment Identity) number, search in the Knowledge Base Resource at <a href="http://www.dell.com/support">www.dell.com/support</a> .		

## Audio

The following table lists the audio specifications of your Precision 3581.

**Table 12. Audio specifications**

Description	Values
Audio controller	Realtek Waves, MaxxAudio 12.0
Stereo conversion	Supported
Internal audio interface	High definition audio interface
External audio interface	Universal Audio Jack/HDMI 2.0 port
Number of speakers	2
Internal-speaker amplifier	Not supported

**Table 12. Audio specifications (continued)**

Description		Values
External volume controls		Keyboard shortcut controls
Speaker output:		
	Average speaker output	2 W
	Peak speaker output	2 W
Subwoofer output		Not supported
Microphone		Digital-array microphones in camera assembly

## Storage

This section lists the storage options on your Precision 3581.

Your Precision 3581 supports Two M.2 2230/2280 solid-state drives

**Table 13. Storage specifications**

Storage type	Interface type	Capacity
M.2 2230/2280 solid-state drive	PCIe Gen4 x4 NVMe, up to 64 Gbps	2 TB
M.2 2230 self-encrypting drive	PCIe Gen4 x4 NVMe, up to 64 Gbps	256 GB

## Media-card reader

The following table lists the media-card reader specifications of your Precision 3581.

**Table 14. Media-card reader (standard offering)**

Description	Values
<b>Media supported (Maximum capacity supported will vary by Flash Media Types)</b>	
Media Supported	<ul style="list-style-type: none"> <li>• Micro Secure Digital (mSD)</li> <li>• Micro Secure Digital High Capacity (mSDHC)</li> <li>• Micro Secure Digital Extended Capacity (mSDXC)</li> </ul>
Support Specification Versions	microSD 4.0 card

## Keyboard

The following table lists the keyboard specifications of your Precision 3581.

**Table 15. Keyboard specifications**

Description	Values
Keyboard type	Standard keyboard
Keyboard layout	QWERTY
Number of keys	<ul style="list-style-type: none"> <li>• United States and Canada: 99 keys</li> <li>• United Kingdom: 100 keys</li> </ul>

**Table 15. Keyboard specifications (continued)**

Description	Values
	<ul style="list-style-type: none"> <li>● Japan: 103 keys</li> <li>● Canada: 99 keys</li> <li>● French-Canadian Quebec: 100 keys</li> <li>● French-Canadian: 99 keys</li> </ul>
Keyboard size	X=18.05 mm key pitch Y=18.05 mm key pitch
Keyboard shortcuts	Some keys on your keyboard have two symbols on them. These keys can be used to type alternate characters or to perform secondary functions. To type the alternate character, press Shift and the desired key. To perform secondary functions, press fn and the desired key. ⓘ <b>NOTE:</b> You can define the primary behavior of the function keys (F1–F12) changing <b>Function Key Behavior</b> in BIOS setup program.

## Keyboard function keys

The **F1-F12** keys at the top of the keyboard are function keys. By default, these keys are used to perform specific functions defined by the software application in use.

You can run the secondary tasks that are indicated by the symbols on the function keys by pressing the function key with **fn**, for example, **fn** and **F1**. See the table below for the list of secondary tasks and the key combinations to run them.

ⓘ **NOTE:** Keyboard characters may differ depending on the keyboard language configuration. Keys that are used for tasks remain the same, regardless of the keyboard language.

ⓘ **NOTE:** You can define the primary behavior of function keys in the **Function Key Behavior** menu of the BIOS setup program.

**Table 16. Secondary tasks of keyboard keys**

Key combination for task	What the task does
<b>fn</b> and <b>F1</b>	Operating system and application specific F1 behavior
<b>fn</b> and <b>F2</b>	Operating system and application specific F2 behavior
<b>fn</b> and <b>F3</b>	Operating system and application specific F3 behavior
<b>fn</b> and <b>F4</b>	Operating system and application specific F4 behavior
<b>fn</b> and <b>F5</b>	Operating system and application specific F5 behavior
<b>fn</b> and <b>F6</b>	Operating system and application specific F6 behavior
<b>fn</b> and <b>F8</b>	Operating system and application specific F8 behavior
<b>fn</b> and <b>F9</b>	Operating system and application specific F9 behavior
<b>fn</b> and <b>F10</b>	Operating system and application specific F10 behavior
<b>fn</b> and <b>F11</b>	Operating system and application specific F11 behavior
<b>fn</b> and <b>F12</b>	Operating system and application specific F12 behavior
<b>fn</b> and <b>Right Ctrl</b>	Open application menu
<b>fn</b> and <b>Cursor up</b>	Page up
<b>fn</b> and <b>Cursor down</b>	Page down

## Keys with alternate characters

There are other keys on your keyboard with alternate characters. The symbols that are shown at the bottom of these keys are the main characters that are displayed when the key is pressed; the symbols that are shown at the top of these keys are displayed when the key is pressed with the shift key. For example, if you press **2**, **2** is displayed; if you press **Shift** and **2**, **@** is displayed.

## Camera

The following table lists the camera specifications of your Precision 3581.

**Table 17. Camera specifications**

Description		Values
Number of cameras		One
Camera type		<ul style="list-style-type: none"> <li>FHD RGB camera</li> <li>FHD RGB + IR camera</li> <li>FHD RGB+IR camera with Ambient Light Sensor, Express Sign-In with Presence Detection and Intelligent Privacy</li> </ul>
Camera location		Front camera
Camera sensor type		CMOS sensor technology
Camera resolution:		
	Still image	2.07 megapixels
	Video	1920 x 1080 (FHD) at 30 fps
Infrared camera resolution:		
	Still image	0.23 megapixels
	Video	640 x 360 at 30 fps
Diagonal viewing angle:		
	Camera	80 degrees
	Infrared camera	86.6 degrees

## Touchpad

The following table lists the touchpad specifications of your Precision 3581.

**Table 18. Touchpad specifications**

Description		Values
Touchpad resolution:		>300 DPI
Touchpad dimensions:		
	Horizontal	115 mm
	Vertical	67 mm
Touchpad gestures		For more information about touchpad gestures available on:




**Table 18. Touchpad specifications (continued)**

Description	Values
	<ul style="list-style-type: none"> <li>Windows, see the Microsoft knowledge base article at <a href="https://support.microsoft.com">support.microsoft.com</a></li> <li>Ubuntu, see <a href="https://ubuntu.com/support">ubuntu.com/support</a></li> </ul>

## Power adapter

The following table lists the power adapter specifications of your Precision 3581.

**Table 19. Power adapter specifications**

Description	Option one	Option two
Type	100 W USB-C	130 W, USB-C
Input voltage	100 VAC - 240 VAC	100 VAC - 240 VAC
Input frequency	50 Hz – 60 Hz	50 Hz – 60 Hz
Input current (maximum)	1.7A	1.8A
Output current (continuous)	<ul style="list-style-type: none"> <li>20V/5A (Continuous)</li> <li>15V/3A (Continuous)</li> <li>9.0V/3A (Continuous)</li> <li>5.0V/3A (Continuous)</li> </ul>	<ul style="list-style-type: none"> <li>20V/6.5A (Continuous)</li> <li>5.0V/1A (Continuous)</li> </ul>
Rated output voltage	20VDC/15VDC/9VDC/5VDC	20VDC/5VDC
Temperature range:		
Operating	0° to 40°C (32°F to 104°F)	0° to 40°C (32°F to 104°F)
Storage	- 40° to 70°C (-40°F to 158°F)	- 40° to 70°C (-40°F to 158°F)
 <b>CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.</b>		

## Battery

The following table lists the battery specifications of your Precision 3581.

**Table 20. Battery specifications**

Description	Option one	Option two
Battery type	4-cell "smart" lithium-ion 64 Wh	6-cell "smart" lithium-ion 97 Wh
Battery voltage	15.2 VDC	11.4 VDC
Battery weight (maximum)	0.28 kg (0.49 lb)	0.42 kg (0.92 lb)
Battery dimensions:		
Height	7.6 mm (0.29 in.)	7.6 mm (0.29 in.)
Width	226.6 mm (8.92 in.)	336 mm (13.22 in.)

**Table 20. Battery specifications (continued)**

Description		Option one	Option two
	Depth	81.40 mm (3.20 in.)	81.40 mm (3.20 in.)
Temperature range:			
	Operating	<ul style="list-style-type: none"> <li>Charge: 0°C to 45°C (32°F to 113°F)</li> <li>Discharge: 0°C to 70°C (32°F to 158°F)</li> </ul>	<ul style="list-style-type: none"> <li>Charge: 0°C to 45°C (32°F to 113°F)</li> <li>Discharge: 0°C to 70°C (32°F to 158°F)</li> </ul>
	Storage	-20°C to 65°C (-4°F to 149°F)	-20°C to 65°C (-4°F to 149°F)
Battery 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.
Battery charging time (approximate) ⓘ <b>NOTE:</b> Control the charging time, duration, start and end time, and so on using the Dell Power Manager application. For more information about Dell Power Manager, search in the Knowledge Base Resource at <a href="http://www.dell.com/support">www.dell.com/support</a> .		<ul style="list-style-type: none"> <li>From 0% up to 35% in 20 minutes (ExpressCharge Boost)</li> <li>80% in 1 hour</li> <li>2 hours to full</li> <li>3 hours to full ( Standard charge)</li> </ul>	<ul style="list-style-type: none"> <li>From 0% up to 35% in 20 minutes (ExpressCharge Boost)</li> <li>80% in 1 hour</li> <li>2 hours to full</li> <li>3 hours to full ( Standard charge)</li> </ul>
Coin-cell battery		CR2032	CR2032
<p><b>⚠ CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.</b></p> <p><b>⚠ CAUTION: Dell recommends that you charge the battery regularly for optimal power consumption. If your battery charge is completely depleted, connect the power adapter, turn on your computer, and then restart your computer to reduce the power consumption.</b></p>			

## Display

The following table lists the display specifications of your Precision 3581.

**Table 21. Display specifications**

Description		Option one	Option two	Option three
Display type		15.60-inch Full High Definition (FHD)	15.60-inch Full High Definition (FHD)	15.60-inch Full High Definition (FHD)
Touch options		No	Yes	No
Display-panel technology		In-Plane Switching (IPS)	In-Plane Switching (IPS)	In-Plane Switching (IPS)
Display-panel dimensions (active area):				
	Height	193.60 mm (7.62 in.)	193.60 mm (7.62 in.)	193.60 mm (7.62 in.)
	Width	344.20 mm (13.55 in.)	344.20 mm (13.55 in.)	344.20 mm (13.55 in.)
	Diagonal	396 mm (15.60)	396 mm (15.60)	396 mm (15.60)

**Table 21. Display specifications (continued)**

<b>Description</b>	<b>Option one</b>	<b>Option two</b>	<b>Option three</b>
Display-panel native resolution	1920 x 1080	1920 x 1080	1920 x 1080
Luminance (typical)	250 nits	250 nits	400 nits
Megapixels	2.07 colors	2.07	2.07
Color gamut	45% NTSC	45% NTSC	100% sRGB
Color depth	6-bit	6-bit	True 8-bit
Color	262,144 colors	262,144 colors	16,777,216 colors
Pixels Per Inch (PPI)	141	141	141
Contrast ratio (typical)	700:1	700:1	800:1
Response time (max)	35 ms	35 ms	35 ms
Refresh rate	60 Hz	60 Hz	60 Hz
Horizontal view angle	+/- 80 degrees	+/- 80 degrees	+/- 80 degrees
Vertical view angle	+/- 80 degrees	+/- 80 degrees	+/- 80 degrees
Pixel pitch	0.179 x 0.179 mm	0.179 x 0.179 mm	0.179 x 0.179 mm
Power consumption (maximum)	4.6 W	4.6 W	4.5 W
Anti-glare vs glossy finish	Anti-glare	Anti-glare	Anti-glare

## Fingerprint reader (optional)

The following table lists the specifications of the optional fingerprint-reader of your Precision 3581.

**Table 22. Fingerprint reader specifications**

<b>Description</b>	<b>Values</b>
Fingerprint-reader sensor technology	Capacitive
Fingerprint-reader sensor resolution	500 dpi
Fingerprint-reader sensor pixel size	108 x 88

## Sensor

The following table lists the sensor of your Precision 3581.

**Table 23. Sensor**

<b>Sensor support</b>
Ambient Light Sensor
Accelerometer in the base: ST Micro LIS2DW12TR

**Table 23. Sensor (continued)**

Sensor support
Accelerometer in the hinge-up (Upsell config with Emza/ALS/IR camera): ST Micro LNG2DMTR

## GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Precision 3581.

**Table 24. GPU—Integrated**

Controller	External display support	Memory size	Processor
Intel Iris Xe Graphics	One HDMI 2.0 port	Dual-channel memory	13 <sup>th</sup> Generation Intel Core i5/i7/i9
Intel UHD Graphics	One HDMI 2.0 port	Single-channel memory	13 <sup>th</sup> Generation Intel Core i5/i7/i9

## GPU—Discrete

The following table lists the specifications of the discrete Graphics Processing Unit (GPU) supported by your Precision 3581.

**Table 25. GPU—Discrete**


Controller	Memory size	Memory type
NVIDIA RTX A500	4 GB	GDDR6
NVIDIA RTX A1000	6 GB	GDDR6
NVIDIA RTX 2000 Ada Generation	8 GB	GDDR6

## External display support

The following table lists the external display support for your Precision 3581.

**Table 26. External display support**

Graphics card	Supported external displays with laptop display enabled	Supported external displays with laptop display disabled
Intel Iris Xe Graphics	3	4
Intel UHD Graphics	3	4

 **NOTE:** For more information about external display support, see the External Display Connection Guide on [www.dell.com/support](http://www.dell.com/support).

# Hardware security

The following table lists the hardware security of your Precision 3581.

**Table 27. Hardware security**

Hardware security
Trusted Platform Module (TPM) 2.0 discrete
FIPS 140-2 certification for TPM
TCG Certification for TPM (Trusted Computing Group)
Finger Print Reader in Power Button tied to ControlVault 3
ControlVault 3 Advanced Authentication with FIPS 140-2 Level 3 Certification
Contacted Smart Card and ControlVault 3
Contactless Smart Card, NFC, and ControlVault 3
SED SSD NVMe, SSD and HDD (Opal and non-Opal) per SDL

## Smart-card reader

### Contactless smart-card reader


This section lists the contactless smart-card reader specifications of your Precision 3581.

**Table 28. Contactless smart-card reader specifications**

Title	Description	Dell ControlVault 3 contactless smart-card reader with NFC
Felica Card Support	Reader and software capable of supporting Felica contactless cards	Yes
ISO 14443 Type A Card Support	Reader and software capable of supporting ISO 14443 Type A contactless cards	Yes
ISO 14443 Type B Card Support	Reader and software capable of supporting ISO 14443 Type B contactless cards	Yes
ISO/IEC 21481	Reader and software capable of supporting ISO/IEC 21481 compliant contactless cards and tokens	Yes
ISO/IEC 18092	Reader and software capable of supporting ISO/IEC 21481 compliant contactless cards and tokens	Yes
ISO 15693 Card Support	Reader and software capable of supporting ISO15693 contactless cards	Yes
NFC Tag Support	Supports reading and processing of NFC compliant tag information	Yes
NFC Reader Mode	Support for NFC Forum Defined Reader mode	Yes
NFC Writer Mode	Support for NFC Forum Defined Writer mode	Yes

**Table 28. Contactless smart-card reader specifications (continued)**

Title	Description	Dell ControlVault 3 contactless smart-card reader with NFC
NFC Peer-to-Peer Mode	Support for NFC Forum Defined Peer to Peer mode	Yes
EMVCo Compliant	Compliant with EMVCO smart card standards as posted to www.emvco.com	Yes
EMVCo Certified	Formally certified based on EMVCO smart card standards	Yes
NFC Proximity OS Interface	Enumerates NFP (Near Field Proximity) device for OS to utilize	Yes
PC/SC OS interface	Personal Computer/Smart Card specification for integration of hardware readers into personal computer environments	Yes
CCID driver compliance	Common driver support for Integrated Circuit Card Interface Device for OS level drivers	Yes
Windows Certified	Device certified by Microsoft WHCK	Yes
Dell ControlVault support	Device connects to Dell ControlVault for usage and processing	Yes
FIDO2 compliance	Dell ControlVault 3 Smart-card reader is compliant with the FIDO SPEC	Yes

 **NOTE:** 125 Khz proximity cards are not supported.

**Table 29. Supported cards**

Manufacturer	Card
HID	jCOP readertest3 A card (14443a)
	1430 1L
	DESFire D8H
	iClass (Legacy)
	iClass SEOS
NXP/Mifare	Mifare DESFire 8K White PVC Cards
	Mifare Classic 1K White PVC Cards
	NXP Mifare Classic S50 ISO Card
G&D	idOnDemand - SCE3.2 144K
	SCE6.0 FIPS 80K Dual+ 1 K Mifare
	SCE6.0 nonFIPS 80K Dual+ 1 K Mifare
	SCE6.0 FIPS 144K Dual + 1K Mifare
	SCE6.0 nonFIPS 144K Dual + 1 K Mifare
	SCE7.0 FIPS 144K
Oberthur	idOnDemand - OCS5.2 80K
	ID-One Cosmo 64 RSA D V5.4 T=0 card

## Contacted smart-card reader

The following table lists the contacted smart-card reader specifications of your Precision 3581.

**Table 30. Contacted smart-card reader specifications**

Title	Description	Dell ControlVault 3 smart-card reader
ISO 7816 -3 Class A Card Support	Reader capable of reading 5V powered smart mcard	Yes
ISO 7816 -3 Class B Card Support	Reader capable of reading 3V powered smart card	Yes
ISO 7816 -3 Class C Card support	Reader capable of reading 1.8V powered smart card	Yes
ISO 7816-1 Compliant	Specification for the reader	Yes
ISO 7816 -2 Compliant	Specification for smart card device physical characteristics (size, location of connection points, etc.)	Yes
T=0 support	Cards support character level transmission	Yes
T=1 support	Cards support block level transmission	Yes
EMVCo Compliant	Compliant with EMVCo (for electronic payment standards) smart card standards as posted to <a href="http://www.emvco.com">www.emvco.com</a>	Yes
EMVCo Certified	Formally certified based on EMVCO smart card standards	Yes
PC/SC OS interface	Personal Computer/Smart Card specification for integration of hardware readers into personal computer environments	Yes
CCID driver compliance	Common driver support for Integrated Circuit Card Interface Device for OS level drivers.	Yes
Windows Certified	Device certified by WHCK	Yes
FIPS 201 (PIV/HSPD-12) Compliant via GSA	Device compliant with FIPS 201/PIV/HSPD-12 requirements	Yes
FIDO2 compliance	Dell ControlVault 3 Smart-card reader is compliant with the FIDO SPEC	Yes

## Operating and storage environment


This table lists the operating and storage specifications of your Precision 3581.

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

**Table 31. Computer environment**

Description	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

**Table 31. Computer environment (continued)**

Description	Operating	Storage
Shock (maximum)	110 G†	160 G†
Altitude range	-15.2 m to 3048 m (-49.87 ft to 10000 ft)	-15.2 m to 10668 m (-49.87 ft to 35000 ft)
 <b>CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.</b>		

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

† Measured using a 2 ms half-sine pulse.

## Dell Support policy

For information on Dell support policy, search in the Knowledge Base Resource at [www.dell.com/support](http://www.dell.com/support).

## ComfortView Plus

 **WARNING: Prolonged exposure to blue light from the display may lead to long-term effects such as eye strain, eye fatigue, or damage to the eyes.**

Blue light is a color in the light spectrum which has a short wavelength and high energy. Chronic exposure to blue light, particularly from digital sources, may disrupt sleep patterns and cause long-term effects such as eye strain, eye fatigue, or damage to the eyes.

The display on this computer is designed to minimize blue light and complies with TÜV Rheinland's requirement for low blue light displays.

Low blue light mode is enabled at the factory, so no further configuration is necessary.

To reduce the risk of eye strain, it is also recommended that you:

- Position the display at a comfortable viewing distance between 20 and 28 inches (50 and 70 cm) from your eyes.
- Blink frequently to moisten your eyes, wet your eyes with water, or apply suitable eye drops.
- Look away from your display, and gaze at a distant object at 20 ft (609.60 cm) away for at least 20 seconds during each break.
- Take an extended break for 20 minutes every two hours.

## Using the privacy shutter

1. Slide the privacy shutter to the left to access the camera lens.
2. Slide the privacy shutter to the right to cover the camera lens.