

# **Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1**

## PB13250/PB13250 2-in-1 (Intel Core Ultra 200U Series)

### 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.

# Contents

<b>Chapter 1: Views of Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.....</b>	<b>7</b>
Right.....	7
Left.....	7
Front.....	9
Top.....	10
Bottom.....	11
Service Tag.....	11
Modes.....	12
Battery-charge status light.....	14
<b>Chapter 2: Set up your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1 .....</b>	<b>15</b>
<b>Chapter 3: Specifications of Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.....</b>	<b>17</b>
Dimensions and weight.....	17
Processor.....	17
Chipset.....	18
Operating system.....	18
Memory.....	18
External ports and slots.....	19
Internal slots.....	19
Wireless module.....	19
WWAN module.....	20
Audio.....	21
Storage.....	22
Media-card reader.....	22
Keyboard.....	23
Keyboard function keys of Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.....	23
Camera.....	25
Touchpad.....	25
Power adapter.....	26
Power adapter requirements (for computers that are shipped with 3-cell, 45 Wh battery).....	27
Power adapter requirements (for computers that are shipped with 3-cell, 55 Wh battery).....	27
Battery.....	28
Power requirements (for computers that are shipped with a 3-cell, 45 Wh battery) .....	29
Power requirements (for computers that are shipped with a 3-cell, 55 Wh battery) .....	30
Display.....	30
Fingerprint reader (optional).....	31
GPU—Integrated.....	32
Hardware security.....	32
Smart-card reader.....	32
Contactless smart-card reader.....	32
Contacted smart-card reader.....	34
Operating and storage environment.....	35
ComfortView Plus.....	35

<b>Chapter 4: Working inside your computer.....</b>	<b>36</b>
Safety instructions.....	36
Before working inside your computer.....	36
Safety precautions.....	37
Electrostatic discharge—ESD protection.....	37
ESD Field Service kit .....	38
Transporting sensitive components.....	39
After working inside your computer.....	39
BitLocker.....	39
Recommended tools.....	39
Screw list.....	40
Major components of Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.....	41
<b>Chapter 5: Removing and installing Customer Replaceable Units (CRUs).....</b>	<b>44</b>
SIM-card tray (optional).....	44
Removing the SIM-card tray (optional).....	44
Installing the SIM-card tray (optional).....	45
Base cover.....	46
Removing the base cover.....	46
Installing the base cover.....	48
Battery.....	51
Rechargeable Li-ion battery precautions.....	51
Removing the battery.....	51
Installing the battery.....	52
Battery cable.....	53
Removing the battery cable.....	53
Installing the battery cable.....	54
Memory module.....	55
Removing the memory module .....	55
Installing the memory module.....	56
Wireless Wide Area Network (WWAN) card.....	57
Removing the 5G WWAN card (optional).....	57
Installing the 5G WWAN card (optional).....	60
Wireless Local Area Network (WLAN) card.....	62
Removing the WLAN card.....	62
Installing the WLAN card.....	63
Solid State Drive (SSD).....	64
Removing the M.2 2230 SSD.....	64
Installing the M.2 2230 SSD.....	64
Removing the M.2 2280 SSD.....	65
Installing the M.2 2280 SSD.....	66
Speakers.....	67
Removing the speakers.....	67
Installing the speakers.....	68
<b>Chapter 6: Removing and installing Field Replaceable Units (FRUs).....</b>	<b>70</b>
Fan.....	70
Removing the fan.....	70

Installing the fan.....	71
USH daughterboard.....	72
Removing the USH-daughter board.....	72
Installing the USH-daughter board.....	73
Smart-card reader.....	74
Removing the optional smart-card reader.....	74
Installing the optional smart-card reader.....	75
Heat sink.....	77
Removing the heat sink.....	77
Installing the heat sink.....	78
Display assembly.....	79
Removing the display assembly.....	79
Installing the display assembly.....	80
System board.....	83
Removing the system board.....	83
Installing the system board.....	85
USB Type-C connector module.....	87
Removing the USB Type-C connector module.....	87
Installing the USB Type-C connector module.....	88
Wireless Local Area Network (WLAN) antenna modules.....	90
Removing the WLAN antenna modules.....	90
Installing the WLAN antenna modules.....	91
I/O board.....	93
Removing the I/O board.....	93
Installing the I/O board.....	95
Power button with optional fingerprint reader.....	96
Removing the power button with an optional fingerprint reader.....	96
Installing the power button with optional fingerprint reader.....	97
Keyboard.....	99
Removing the keyboard.....	99
Installing the keyboard.....	101
Palm-rest assembly.....	104
Removing the palm-rest assembly.....	104
Installing the palm-rest assembly.....	105
Display bezel.....	107
Removing the display bezel .....	107
Installing the display bezel.....	113
Display hinges.....	114
Removing the display hinges.....	114
Installing the display hinges.....	115
Display panel.....	117
Removing the display panel.....	117
Installing the display panel.....	118
Camera module.....	121
Removing the camera module.....	121
Installing the camera module.....	122
Display cable.....	123
Removing the display cable.....	123
Installing the display cable.....	124
Display back cover.....	126

Removing the display back cover.....	126
Installing the display back cover.....	127
<b>Chapter 7: Software.....</b>	<b>129</b>
Operating system.....	129
Drivers and downloads.....	129
<b>Chapter 8: BIOS Setup.....</b>	<b>130</b>
Entering BIOS Setup program.....	130
Navigation keys.....	130
F12 One Time Boot menu.....	130
View Advanced Setup options.....	131
View Service options.....	131
BIOS Setup options.....	131
Updating the BIOS.....	148
Updating the BIOS in Windows.....	148
Updating the BIOS in Linux and Ubuntu.....	148
Updating the BIOS using the USB drive in Windows.....	148
Updating the BIOS from the One-Time boot menu.....	149
System and setup password.....	149
Assigning a System Setup password.....	150
Deleting or changing an existing system password or setup password.....	150
Clearing system and setup passwords.....	151
<b>Chapter 9: Troubleshooting.....</b>	<b>152</b>
Handling swollen rechargeable Li-ion batteries.....	152
Locating the Service Tag or Express Service Code of your Dell computer .....	152
Dell SupportAssist Pre-boot System Performance Check diagnostics.....	153
Running the SupportAssist Pre-Boot System Performance Check.....	153
Built-in self-test (BIST).....	153
Motherboard Built-In Self-Test (M-BIST).....	153
Logic Built-in Self-test (L-BIST).....	154
LCD Built-in Self-Test (LCD-BIST).....	154
System-diagnostic lights.....	155
Recovering the operating system.....	156
Real-Time Clock (RTC Reset).....	157
Backup media and recovery options.....	157
Network power cycle.....	157
Drain flea power (perform hard reset).....	157
<b>Chapter 10: Getting help and contacting Dell.....</b>	<b>159</b>

# Views of Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1

## Right



**Figure 1.** Right view

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

Insert a SIM card to connect to a mobile broadband network

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

### 2. Global headset jack

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

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

Connect devices such as external storage devices and printers. It provides data transfer speeds up to 5 Gbps. PowerShare enables you to charge your USB devices even when your computer is turned off.

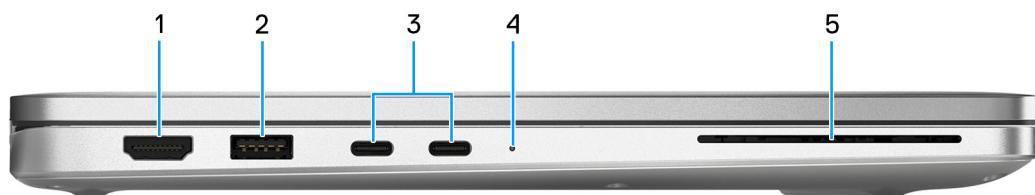
**(i) NOTE:** If your computer is turned off or in a hibernate state, you must connect the power adapter to charge your devices using the PowerShare port. You must enable this feature in the BIOS setup program.

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

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

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

## Left



**Figure 2.** Left view

## **1. HDMI 2.1 Transition-minimized differential signaling (TMDS) port**

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

## **2. USB 3.2 Gen 1 port**

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

## **3. Thunderbolt 4 ports with DisplayPort Alt Mode/USB Type-C/USB4/Power Delivery (2)**

Supports USB4, DisplayPort 2.1, 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.

**i | NOTE:** You can connect a Dell Docking Station to one of the Thunderbolt 4 ports. For more information, search in the Knowledge Base Resource at [Dell Support Site](#).

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

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

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

## **4. Battery-status light**

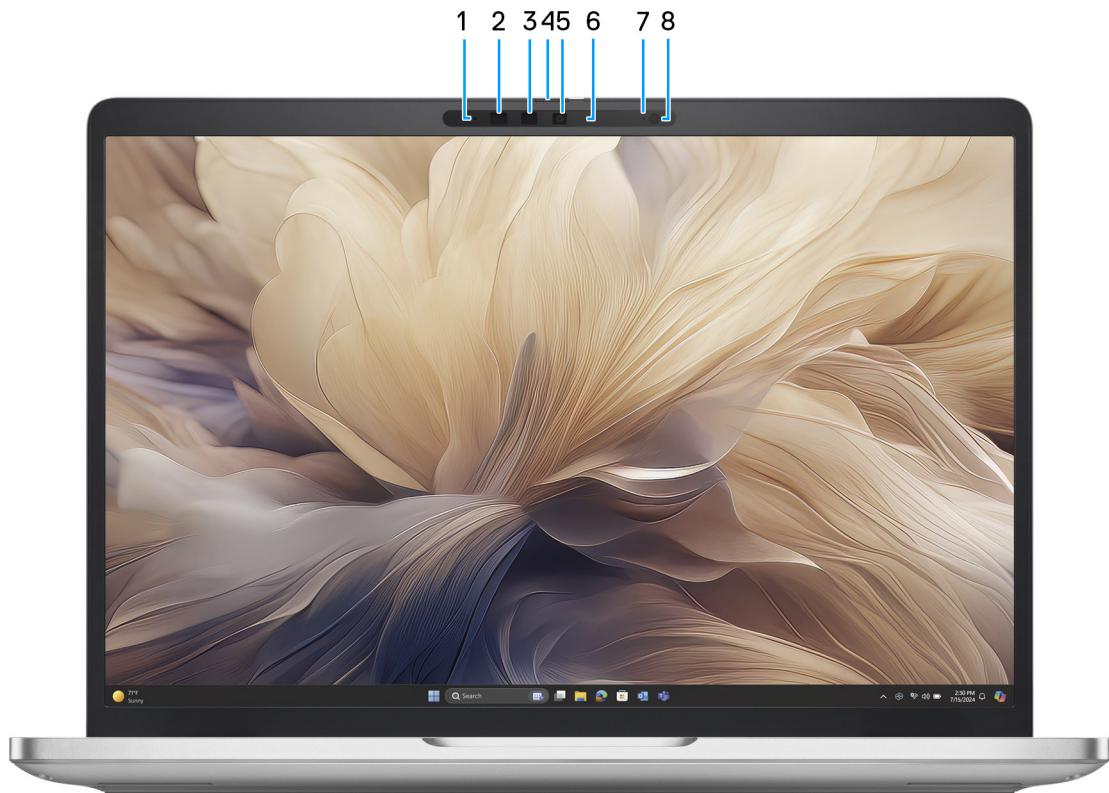
Battery-status light indicates the battery-charge status.

- White—Battery is charging.
- Solid yellow—Battery charge is low.
- Blinking yellow—Battery charge is critical.
- Off—Battery is fully charged.

## **5. Smart-card reader slot (optional)**

Using smart card provides authentication in corporate networks.

# Front



**Figure 3. Front view**

**1. Left microphone**

Provides digital sound input for audio recording and voice calls.

**2. IR Sensor (optional)**

Sensor detects the absence of the user and locks the computer for securing the computer and reducing power consumption.

**3. Infrared emitter (optional)**

The infrared emitter emits infrared light, which enables the infrared camera to sense and track motion.

**4. Camera Shutter**

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

**5. Camera**

A camera enables you to video chat, capture photos, and record videos.

**6. Camera-status light**

Turns on when the camera is in use.

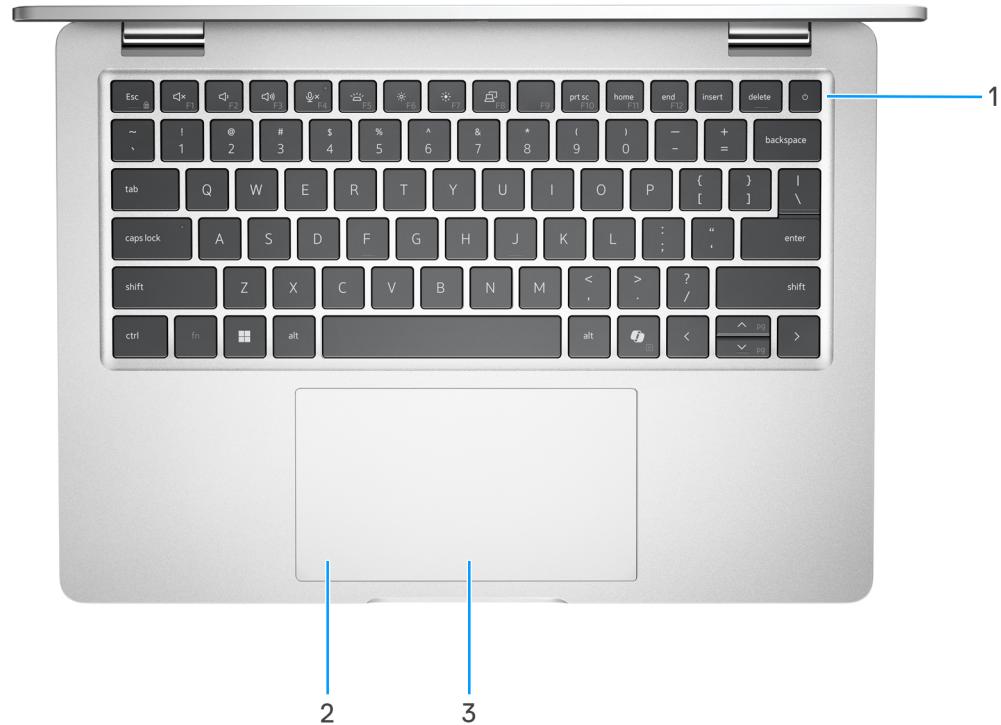
**7. Right microphone**

Provides digital sound input for audio recording and voice calls.

**8. Ambient-light sensor (optional)**

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

# Top



**Figure 4. Top view**

## 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 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.

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

**i** **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 does not have the power-status light on the power button.

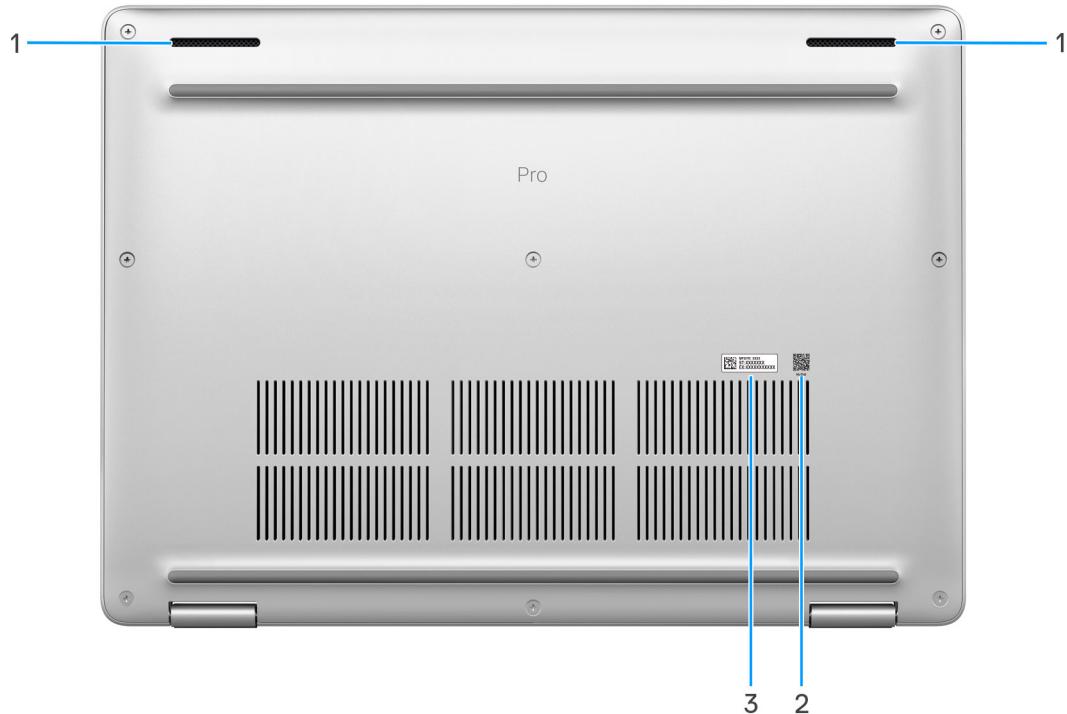
## 2. Touchpad

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

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

Enables NFC-enabled devices to communicate with your computer.

## Bottom



**Figure 5. Bottom view**

### 1. Speakers (2)

Provide audio output.

### 2. MyDell QR code

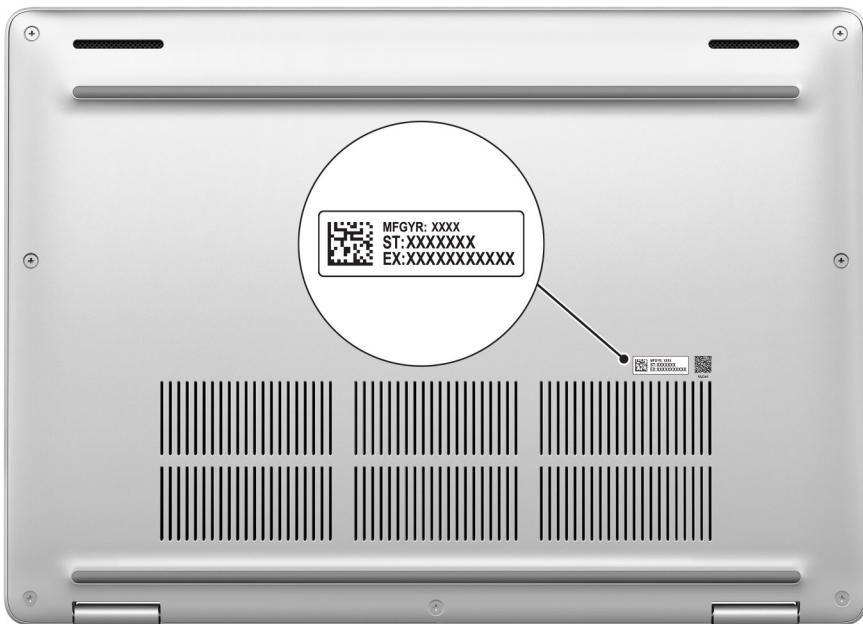
MyDell is your hub for content that is personalized to your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1, including videos, articles, manuals, and easy access to support.

### 3. 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.

## 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.



**Figure 6. Service tag location**

## Modes

The following modes are supported only on Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1 configuration.

### Notebook



**Figure 7. Notebook mode**

Tablet



**Figure 8. Tablet Mode**

Stand



**Figure 9. Stand mode**

Tent



**Figure 10. Tent mode**

# Battery-charge status light

The following table lists the battery-charge status light of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

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

Power source	LED behavior	System power state	Battery charge level
AC adapter	Off	S0 or S5	Fully charged
AC adapter	Solid white	S0 or S5	< Fully charged
Battery	Off	S0 or S5	11-100%
Battery	Solid amber (590+/-3 nm)	S0 or S5	< 10%

- S0 (ON): Computer is turned on.
- S4 (Hibernate): The computer consumes the least power in the Hibernate state than in the ON or OFF state. The computer is almost in the OFF state. The context data is written to a storage device, allowing you to resume from where you left when the computer is turned on.
- S5 (OFF): The computer is in a shutdown state.

# Set up your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1

## About this task

**i** **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.



**Figure 11. Connect the power adapter and press the power button**

**i** **NOTE:** The battery may go into power-saving mode during shipment to conserve charge on the battery. Ensure that the power adapter is connected to your computer when it is turned on for the first time.

2. Finish the 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 [Dell Support Site](#).

### For Windows:

Follow the on-screen instructions to complete the setup. When setting up, it is recommended that you:

- Connect to a network for Windows updates.

**i** **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 an existing Microsoft account or create an 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
 <b>Dell Optimizer</b>	<p>Dell Optimizer is an application that is designed to enhance computer performance and productivity by optimizing settings for power, battery, display, collaboration touchpad, and presence detection. It also provides access to applications purchased with your new computer.</p> <p>For more information, see Dell Optimizer User's Guide at <a href="#">Dell Support Site</a>.</p>
	<p><b>Dell Product Registration</b></p> <p>Register your computer with Dell.</p>
	<p><b>Dell Help &amp; Support</b></p> <p>Access help and support for your computer.</p>
	<p><b>SupportAssist</b></p> <p>SupportAssist is a proactive and predictive technology that offers automated technical support for Dell computers. It proactively monitors both hardware and software, addressing performance issues, preventing security threats, and automating engagement with Dell Technical Support.</p> <p>For more information, see SupportAssist documentation at <a href="#">Dell Support Site</a>.</p> <p><b>i   NOTE:</b> In SupportAssist, click the warranty expiry date to renew or upgrade your warranty.</p>

# Specifications of Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1

## Dimensions and weight

The following table lists the height, width, depth, and weight of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 3. Dimensions and weight**

Dimensions and weight specifications	300 nits FHD and Non-touch	300 nits FHD and touch 400 nits FHD and Non-touch	2-in-1 300 nits FHD and touch
Height:			
Front height	19.79 mm (0.78 in.)	19.78 mm (0.78 in.)	19.76 mm (0.78 in.)
Rear height	19.79 mm (0.78 in.)	19.78 mm (0.78 in.)	20.43 mm (0.80 in.)
Maximum Height	20.75 mm (0.82 in.)	19.95 mm (0.79 in.)	20.9 mm (0.82 in.)
Width	300 mm (11.81 in.)	300 mm (11.81 in.)	300 mm (11.81 in.)
Depth	215 mm (8.46 in.)	215 mm (8.46 in.)	215 mm (8.46 in.)
Weight   <b>NOTE:</b> The weight of your computer depends on the configuration that is offered.	1.347 kg (2.97 lb) - minimum	1.238 kg (2.73 lb) - minimum	1.44 kg (3.18 lb) - minimum

## Processor

The following table lists the details of the processors that are supported by your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 4. Processor**

Description	Processor wattage	Processor core count	Processor thread count	Processor speed	Processor cache	Integrated graphics
Intel Core Ultra 5 225U	15 W	12	14	up to 4.8 GHz	12 MB	Intel Xe LPG Graphics
Intel Core Ultra 5 235U	15 W	12	14	up to 4.9 GHz	12 MB	Intel Xe LPG Graphics
Intel Core Ultra 7 255U	15 W	12	14	up to 5.2 GHz	12 MB	Intel Xe LPG Graphics
Intel Core Ultra 7 265U	15 W	12	14	up to 5.3 GHz	12 MB	Intel Xe LPG Graphics

# Chipset

The following table lists the details of the chipset that is supported by your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 5. Chipset**

Description	Values
Chipset	Integrated in the processor
Processor	Intel Core Ultra 5/7
DRAM bus width	64-bit
Flash EPROM	64 MB
PCIe bus	Up to Gen4

# Operating system

Your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1 supports the following operating systems:

- Windows 11 Professional
- Windows 11 Home
- Ubuntu Linux 24.04

**(i) NOTE:** If you downgrade your computer from Windows 11 to Windows 10 22H2, Dell Technologies support will follow the Microsoft Windows 10 End of Support plan.

# Memory

The following table lists the memory specifications of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 6. Memory specifications**

Description	Values
Memory slots	Two SODIMM slots
Memory type	DDR5
Memory speed	5600 MT/s
Maximum memory configuration	64 GB
Minimum memory configuration	8 GB
Memory configurations supported	<ul style="list-style-type: none"><li>• 8 GB: 1 x 8 GB, DDR5, single-channel</li><li>• 16 GB: 2 x 8 GB, DDR5, dual-channel</li><li>• 16 GB: 1 x 16 GB, DDR5, single-channel</li><li>• 32 GB: 2 x 16 GB, DDR5, dual-channel</li><li>• 32 GB: 1 x 32 GB, DDR5, single-channel</li><li>• 64 GB: 2 x 32 GB, DDR5, dual-channel</li></ul>

# External ports and slots

The following table lists the external ports and slots and specifications of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1..

**Table 7. External ports and slots**

Description	Values
USB ports	<ul style="list-style-type: none"><li>Two Thunderbolt 4 ports with DisplayPort Alt Mode/USB Type-C/USB4/Power Delivery</li></ul> <p><b>i</b> <b>NOTE:</b> You can connect a Dell Docking Station to these ports. For more information, search in the Knowledge Base Resources at <a href="#">Dell Support Site</a>.</p> <ul style="list-style-type: none"><li>One USB 3.2 Gen 1 port with Power Share</li><li>One USB 3.2 Gen 1 port</li></ul>
Audio port	One global headset jack
Video port	One HDMI 2.1 Transition-minimized differential signaling (TMDS) port
Media-card reader	One smart-card reader slot (optional)
Power-adapter port	Supported through the USB Type-C port.
Security-cable slot	One security-cable slot (wedge-shaped)
SIM-card Slot	Nano-SIM card slot (optional)

# Internal slots

The following table lists the internal slots of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 8. Internal slots**

Description	Values
M.2	<ul style="list-style-type: none"><li>One M.2 2230 slot or M.2 2280 slot for solid state drive</li><li>One M.2 2230 slot for WLAN</li><li>One M.2 3042/3052 slot for WWAN (optional)</li></ul> <p><b>i</b> <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="#">Dell Support Site</a>.</p>

# Wireless module

The following table lists the Wireless Local Area Network (WLAN) module that is supported on your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 9. Wireless module specifications**

Description	Option one	Option two
Model number	Intel Wi-Fi 7 BE201	Intel Wi-Fi 6E AX211
Transfer rate	Up to 5760 Mbps	Up to 5760 Mbps
Frequency bands supported	2.4 GHz/5 GHz/6 GHz	2.4 GHz/5 GHz/6 GHz
Wireless standards	<ul style="list-style-type: none"><li>WiFi 802.11a/b/g</li></ul>	<ul style="list-style-type: none"><li>WiFi 802.11a/b/g</li></ul>

**Table 9. Wireless module specifications (continued)**

Description	Option one	Option two
	<ul style="list-style-type: none"> <li>Wi-Fi 4 (WiFi 802.11n)</li> <li>Wi-Fi 5 (WiFi 802.11ac)</li> <li>Wi-Fi 6E (WiFi 802.11ax)</li> <li>Wi-Fi 7 (WiFi 802.11be)</li> </ul>	<ul style="list-style-type: none"> <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 5.4	Bluetooth 5.3
<b>(i) NOTE:</b> The functionality 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 that is supported in your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**(i) NOTE:** The WWAN module is available only on certain configurations and in certain regions.

**(i) NOTE:** Availability of the eSIM feature on this module depends on your region.

**(i) NOTE:** For instructions on how to setup SIM or eSIM connections on your computer, see the [SIM/eSIM Setup Guide](#) available with your product documentation at [Dell Support Site](#).

**Table 10. WWAN module specifications**

Description	Option one	Option two
Model number	DW5826e, Qualcomm Snapdragon SDX12 Global LTE-Advanced, CAT12	DW5933e MediaTek T700 Global 5G Modem
Form factor	M.2 3052 Key-B	M.2 3052 Key-B
Host interface	USB 3.0/2.0	PCIe Gen3
Network standard	<ul style="list-style-type: none"> <li>LTE FDD</li> <li>TDD</li> <li>WCDMA</li> <li>GPS</li> <li>BDS</li> <li>GLONASS</li> <li>Galileo</li> <li>QZSS</li> </ul>	<ul style="list-style-type: none"> <li>NR FR1(Sub6) FDD</li> <li>TDD, LTE FDD</li> <li>TDD, WCDMA</li> <li>HSPA+</li> <li>GPS</li> <li>GLONASS</li> <li>BDS</li> <li>QZSS</li> <li>Galileo</li> </ul>
Transfer data rate	<ul style="list-style-type: none"> <li>Up to 600 Mbps DL (CAT12)</li> <li>Up to 150 Mbps UL</li> </ul>	<ul style="list-style-type: none"> <li>SA: DL 4.67 Gbps/ UL 1.25 Gbps</li> <li>NSA: DL 3.74 Gbps/ UL 835 Mbps</li> <li>LTE: DL 1.6 Gbps (CAT19)/ UL 211 Mbps</li> <li>LTE: DL 1.6 Gbps (CAT19)/ UL 211 Mbps</li> <li>LTE: DL 1.6 Gbps (CAT19)/ UL 211 Mbps</li> </ul>
Operating frequency bands	<ul style="list-style-type: none"> <li>LTE (B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B18, B19, B20, B25, B26, B28, B29, B32, B38, B39, B40, B41, B42, B43, B48, B66, B71)</li> <li>WCDMA (1,2,4,5,6,8,9,19)</li> </ul>	<ul style="list-style-type: none"> <li>LTE (1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 18, 19, 20, 25, 26, 28, 29, 30, 32, 34, 38, 39, 40, 41, 42, 43, 46, 66, 71)</li> </ul>

**Table 10. WWAN module specifications (continued)**

Description	Option one	Option two
		<ul style="list-style-type: none"> <li>NR (1, 2, 3, 5, 7, 8, 20, 25, 28, 38, 40, 41, 48, 66, 71, 77, 78, 79)</li> <li>HSPA+ (1, 2, 4, 5, 8)</li> </ul>
Power supply	DC 3.135 V to 4.4 V, Typical 3.3 V	DC 3.135 V to 4.4 V, Typical 3.3 V
SIM card	Supported through the external SIM slot.  ① <b>NOTE:</b> The availability of eSIM functionality that is embedded on the module depends on the region and specific carrier requirements.	Supported through the external SIM slot.  ① <b>NOTE:</b> The availability of eSIM functionality that is embedded on the module depends on the region and specific carrier requirements.
eSIM with dual SIM (DSSA)	Supported	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: –30°C to +70°C</li> <li>Extended operating temperature: –40°C to +85°C</li> </ul>	<ul style="list-style-type: none"> <li>Normal operating temperature: -10°C to +55°C</li> <li>Extended operating temperature: -40°C to +85°C</li> <li>Storage temperature: -60°C to +100°C</li> </ul>
Antenna connector	<ul style="list-style-type: none"> <li>WWAN Main Antenna x 1</li> <li>WWAN Diversity Antenna x 1</li> </ul>	<ul style="list-style-type: none"> <li>WWAN TX0 and PRX Connector x 1</li> <li>WWAN DRX Combined GPS Connector x 1</li> <li>WWAN MIMO PRX Connector x 1</li> <li>WWAN TX1 and MIMO DRX Connector x 1</li> <li>4x4 MIMO Antenna x 2</li> </ul>
<b>① NOTE:</b> For instructions to find your computer's International Mobile Equipment Identity (IMEI) number, search in the Knowledge Base Resource at <a href="#">Dell Support Site</a> .		

## Audio

The following table lists the audio specifications of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 11. Audio specifications**

Description	Values
Audio controller	Cirrus Logic CS42L43
Stereo conversion	Supported
Internal audio interface	Soundwire Interface
External audio interface	Global headset jack
Number of speakers	Two
Internal-speaker amplifier	Supported (audio codec integrated)
External volume controls	Keyboard shortcut controls
Speaker output:	

**Table 11. Audio specifications (continued)**

<b>Description</b>	<b>Values</b>
Average	2.0 W
Peak	2.5 W
Microphone	Dual-array microphones

## Storage

This section lists the storage options on your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

The availability of eSIM functionality that is embedded on the module depends on the region and specific carrier requirements.

**Table 12. Storage specifications**

<b>Storage type</b>	<b>Interface type</b>	<b>Capacity</b>
M.2 2280 solid-state drive, self-encrypting drive, TLC	PCIe Gen4 NVMe, up to 64 Gbps	2 TB
M.2 2280 solid-state drive, self-encrypting drive, TLC	PCIe Gen4 NVMe, up to 64 Gbps	1 TB
M.2 2230 solid-state drive, TLC	PCIe Gen4 NVMe, up to 64 Gbps	1 TB
M.2 2230 solid-state drive, TLC	PCIe Gen4 NVMe, up to 64 Gbps	512 GB
M.2 2230 solid-state drive, QLC	PCIe Gen4 NVMe, up to 64 Gbps	512 GB
M.2 2230 solid-state drive, TLC	PCIe Gen4 NVMe, up to 64 Gbps	256 GB

## Media-card reader

The following table provides the specification of media cards that are supported by your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 13. Media-card reader specifications**

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

**(i) NOTE:** The maximum capacity that is supported by the media-card reader varies depending on the standard of the media card that is installed on your computer.

# Keyboard

The following table lists the keyboard specifications of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 14. Keyboard specifications**

Description	Values
Keyboard type	<ul style="list-style-type: none"><li>Standard backlit keyboard</li><li>Standard non-backlit keyboard</li></ul>
Keyboard layout	QWERTY
Number of keys	<ul style="list-style-type: none"><li>United States and Canada: 79 keys</li><li>United Kingdom: 80 keys</li><li>Japan: 83 keys</li></ul>
Key pitch	X=18.05 mm key pitch Y=18.05 mm key pitch
Keyboard shortcuts	<p>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.</p> <p><b>i</b> <b>NOTE:</b> You can define the primary behavior of the function keys (F1–F12) changing <b>Function Key Behavior</b> in the BIOS setup program.</p> <p><b>i</b> <b>NOTE:</b> If Copilot in Windows is not available on your computer, pressing the Copilot key launches Windows search. For more information about Copilot in Windows, search in the Knowledge Base Resource at the <a href="#">Dell Support site</a>.</p>

## Keyboard function keys of Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1

**i** **NOTE:** Keyboard characters may differ depending on the keyboard language configuration. Keys that are 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. To type the alternate character, press Shift and the desired key. To perform secondary functions, press Fn and the desired key. The symbol that is 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 that is 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 multimedia control, as indicated by the icon on the key. Press the function key to enable the task represented by the icon. For example, pressing F1 mutes the audio (see the table below).

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

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

**Table 15. Function key primary behavior**

Function key	Primary behavior
F1	Mute or unmute audio

**Table 15. Function key primary behavior (continued)**

<b>Function key</b>	<b>Primary behavior</b>
F2	Decrease volume
F3	Increase volume
F4	Mute/Unmute
F5	Turn on or turn off keyboard backlight (optional). <b>NOTE:</b> Nonbacklight keyboards have the F10 function key without the backlight icon and do not support the toggle keyboard backlight function. <b>NOTE:</b> Toggle to cycle the keyboard backlight status through off, low-backlight, and high-backlight.
F6	Decrease brightness
F7	Increase brightness
F8	Switch to external display
F10	Print Screen
F11	Home
F12	End

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

**Table 16. Secondary behavior**

<b>Function key</b>	<b>Secondary behavior</b>
Fn + F1	Operating system and application-specific F1 behavior
Fn + F2	Operating system and application-specific F2 behavior
Fn + F3	Operating system and application-specific F3 behavior
Fn + F4	Operating system and application-specific F4 behavior
Fn + F5	Operating system and application-specific F5 behavior
Fn + F6	Operating system and application-specific F6 behavior
Fn + F8	Operating system and application-specific F8 behavior
Fn + F9	Operating system and application-specific F9 behavior
Fn + F10	Operating system and application-specific F10 behavior
Fn + F11	Operating system and application-specific F11 behavior
Fn + F12	Operating system and application-specific F12 behavior
Fn + PrtScr	Turn off or on wireless
Fn + B	Pause or Break
Fn + Insert	Enable sleep state
Fn + S	Toggle scroll lock
Fn + H	Toggle between power and battery-status light or hard drive activity light
Fn + R	Snip screen
Fn + Ctrl	Open the application menu
Fn + Esc	Toggle between multimedia and function key behavior

**Table 16. Secondary behavior (continued)**

<b>Function key</b>	<b>Secondary behavior</b>
Fn + PgUp	Scroll up the document or page
Fn + PgDn	Scroll down the document or page
Fn + Home	Move to the beginning of the document
Fn + End	Move to the end of the document

## Camera

The following table lists the camera specifications of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 17. Camera specifications**

<b>Description</b>	<b>Values</b>
Number of cameras	One
Camera type	There are 3 camera options: <ul style="list-style-type: none"> <li>● RGB camera</li> <li>● RGB + IR camera</li> <li>● MIPI + IR camera</li> </ul>
Camera location	Front camera
Camera sensor type	CMOS sensor technology
Camera resolution:	
Still image	<ul style="list-style-type: none"> <li>● 2.07 megapixels</li> <li>● 5.20 megapixels</li> </ul>
Video	<ul style="list-style-type: none"> <li>● 1920 x 1080 at 30 fps</li> <li>● 2560 x 1440 at 30 fps</li> </ul>
Infrared camera resolution:	
Still image	0.23 megapixels
Video	640 x 360 at 15 fps
Diagonal viewing angle:	
Camera	<ul style="list-style-type: none"> <li>● 80.20 degrees</li> <li>● 91.20 degrees</li> </ul>
Infrared camera	86.60 degrees

## Touchpad

The following table lists the touchpad specifications of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 18. Touchpad specifications**

<b>Description</b>	<b>Values</b>
Touchpad resolution:	>=300dpi

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

Description	Values
Touchpad dimensions:	
Horizontal	125 mm (4.92 in.)
Vertical	71 mm (2.80 in.)
Touchpad gestures	<p>For more information about the touchpad gestures that are available on:</p> <ul style="list-style-type: none"> <li>Windows, see the Microsoft Knowledge Base article at <a href="#">Microsoft Support Site</a>.</li> <li>Ubuntu, see <a href="#">Ubuntu Support Site</a>.</li> </ul>

## Power adapter

The following table lists the power adapter specifications of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 19. Power-adapter specifications**

Description	Option one	Option two	Option three
Type	60 W adapter, USB Type-C	65 W adapter, USB Type-C	100 W adapter, USB Type-C
Power-adapter dimensions:			
Height	22 mm (0.86 in.)	28 mm (1.10 in.)	26.5 mm (1.04 in.)
Width	55 mm (2.16 in.)	51 mm (2.01 in.)	60 mm (2.36 in.)
Depth	66 mm (2.59 in.)	112 mm (4.41 in.)	122 mm (4.80 in.)
Input voltage	100 to 240 VAC	100 to 240 VAC	100 to 240 VAC
Input frequency	50 Hz to 60 Hz	50 to 60 Hz	50 to 60 Hz
Input current (maximum)	1.7 A	1.7 A	1.7 A
Output current (continuous)	<ul style="list-style-type: none"> <li>• 20 V/3 A (continuous)</li> <li>• 15 V/3 A (continuous)</li> <li>• 9.0 V/3 A (continuous)</li> <li>• 5.0 V/3 A (continuous)</li> </ul>	<ul style="list-style-type: none"> <li>• 20 V/3.25 A (continuous)</li> <li>• 15 V/3 A (continuous)</li> <li>• 9 V/3 A (continuous)</li> <li>• 5 V/3 A (continuous)</li> </ul>	<ul style="list-style-type: none"> <li>• 20 V/5 A (continuous)</li> <li>• 15 V/3 A (continuous)</li> <li>• 9.0 V/3 A (continuous)</li> <li>• 5.0 V/3 A (continuous)</li> </ul>
Rated output voltage	20 VDC/15 VDC/9 VDC/5 VDC	20 VDC/15 VDC/9 VDC/5 VDC	20 VDC/15 VDC/9 VDC/5 VDC
Temperature range:			
Operating	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)	0°C to 35°C (32°F to 95°F)
Storage	-20°C to 70°C (-4°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C 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>			

## Power adapter requirements (for computers that are shipped with 3-cell, 45 Wh battery)

This section contains the power adapter requirements for the Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1

**(i) NOTE:** If you did not purchase the Dell-branded power adapter that is recommended for your computer, ensure that the power adapter that you use meets the following requirements:

**Table 20. Power adapter requirements**

Description	Value
Power that is required from a power adapter to achieve optimal performance.	65 W
Power that is required to charge the computer at a slower speed. <b>(i) NOTE:</b> A warning message may appear informing you about the use of a lower-powered adapter and slower charging speed.	Less than 60 W
Minimum power that is required from a power adapter to operate the computer and charge the battery. <b>(i) NOTE:</b> A warning message appears informing you about the use of a lower-powered adapter and slower charging speed.	27 W
USB Power Delivery (PD) fast charging	Supported
ExpressCharge mode	45 Whr battery needs a 65 W AC adapter to achieve Express Charge. <b>(i) NOTE:</b> Ensure that the computer is connected to a 65 W power adapter for this feature to be supported. <b>(i) NOTE:</b> ExpressCharge mode must also be enabled in the BIOS Setup screen by selecting Power > Battery Configuration > ExpressCharge, then pressing Enter.

## Power adapter requirements (for computers that are shipped with 3-cell, 55 Wh battery)

This section contains the power adapter requirements for the Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1

**(i) NOTE:** If you did not purchase the Dell-branded power adapter that is recommended for your computer, ensure that the power adapter that you use meets the following requirements:

**Table 21. Power adapter requirements**

Description	Value
Power that is required from a power adapter to achieve optimal performance.	100 W
Power that is required to charge the computer at a slower speed. <b>(i) NOTE:</b> A warning message may appear informing you about the use of a lower-powered adapter and slower charging speed.	Less than 60 W
Minimum power that is required from a power adapter to operate the computer and charge the battery.	27 W

**Table 21. Power adapter requirements (continued)**

Description	Value
(i) <b>NOTE:</b> A warning message appears informing you about the use of a lower-powered adapter and slower charging speed.	
USB Power Delivery (PD) fast charging	Supported
ExpressCharge mode	<p>(i) <b>NOTE:</b></p> <p>55 Whr battery needs a 100 W AC adapter to achieve Express Charge.</p> <p>Ensure that the computer is connected to a 100 W power adapter for this feature to be supported.</p> <p>(i) <b>NOTE:</b> ExpressCharge mode must also be enabled in the BIOS Setup screen by selecting Power &gt; Battery Configuration &gt; ExpressCharge, then pressing Enter.</p>

## Battery

The following table lists the battery specifications of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 22. Battery specifications**

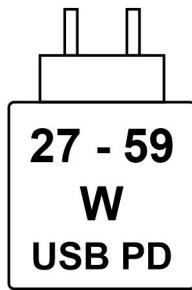
Description	Option one	Option two	Option three	Option four
Battery type	3-cell, 45 Wh, ExpressCharge, ExpressCharge Boost	3-cell, 55 Wh, ExpressCharge, ExpressCharge Boost	3-cell, 45 Wh, Long Life Cycle, ExpressCharge	3-cell, 55 Wh, Long Cycle Life, ExpressCharge
Battery voltage	11.25 V	11.70 VDC	11.25 VDC	11.70 VDC
Battery weight (minimum)	0.20 Kg (0.44 lb)	0.22 kg (0.48 lb)	0.20 kg (0.44 lb)	0.22 kg (0.48 lb)
Battery dimensions:				
Height	72.80 mm (2.83 in.)			
Width	254.80 mm (10.03 in.)			
Depth	6.30 mm (0.25 in.)			
Temperature range:				
Operating	0°C to 45°C (32°F to 113°F)	0°C to 45°C (32°F to 113°F)	0°C to 60°C (32°F to 140°F)	0°C to 60°C (32°F to 140°F)
Storage	-20°C to 65°C (-4°F to 149°F)	-20°C to 65°C (-4°F to 149°F)	-20°C to 60°C (-4°F to 140°F)	-20°C to 60°C (-4°F to 140°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.	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>Standard charge/ Predominately AC</b>	<b>Standard charge/ Predominately AC</b>	<b>Standard charge/ Predominately AC</b>	<b>Standard charge/ Predominately AC</b>

**Table 22. Battery specifications (continued)**

Description	Option one	Option two	Option three	Option four
<p><b>(i) 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="#">Dell Support Site</a>.</p>	<p><b>User Charge Method:</b></p> <ul style="list-style-type: none"> <li>• 0°C to 15°C maximum allowable charge time from 0% to 100% RSOC is 4 hours</li> <li>• 16°C to 45°C maximum allowable charge time from 0% to 100% RSOC is 3 hours</li> </ul> <p><b>ExpressCharge Method:</b></p> <ul style="list-style-type: none"> <li>• 16°C to 45°C maximum allowable charge time from 0% to 80% RSOC is 1 hours</li> <li>• 16°C to 45°C maximum allowable charge time from 0% to 100% RSOC is 2 hours</li> </ul> <p><b>ExpressCharge Boost charge Method:</b></p> <ul style="list-style-type: none"> <li>• 16°C to 45°C maximum allowable charge time from 0% to 35% RSOC is 20 min</li> </ul>	<p><b>User Charge Method:</b></p> <ul style="list-style-type: none"> <li>• 0°C to 15°C maximum allowable charge time from 0% to 100% RSOC is 4 hours</li> <li>• 16°C to 45°C maximum allowable charge time from 0% to 100% RSOC is 3 hours</li> </ul> <p><b>ExpressCharge Method:</b></p> <ul style="list-style-type: none"> <li>• 16°C to 45°C maximum allowable charge time from 0% to 80% RSOC is 1 hours</li> <li>• 16°C to 45°C maximum allowable charge time from 0% to 100% RSOC is 2 hours</li> </ul> <p><b>ExpressCharge Boost charge Method:</b></p> <ul style="list-style-type: none"> <li>• 16°C to 45°C maximum allowable charge time from 0% to 35% RSOC is 20 min</li> </ul>	<p><b>User Charge Method:</b></p> <ul style="list-style-type: none"> <li>• 0°C to 15°C maximum allowable charge time from 0% to 100% RSOC is 4 hours</li> <li>• 16°C to 45°C maximum allowable charge time from 0% to 100% RSOC is 3 hours</li> </ul> <p><b>ExpressCharge Method:</b></p> <ul style="list-style-type: none"> <li>• 16°C to 45°C maximum allowable charge time from 0% to 80% RSOC is 1 hours</li> <li>• 16°C to 45°C maximum allowable charge time from 0% to 100% RSOC is 2 hours</li> </ul>	<p><b>User Charge Method:</b></p> <ul style="list-style-type: none"> <li>• 0°C to 15°C maximum allowable charge time from 0% to 100% RSOC is 4 hours</li> <li>• 16°C to 45°C maximum allowable charge time from 0% to 100% RSOC is 3 hours</li> </ul> <p><b>ExpressCharge Method:</b></p> <ul style="list-style-type: none"> <li>• 16°C to 45°C maximum allowable charge time from 0% to 80% RSOC is 1 hours</li> <li>• 16°C to 45°C maximum allowable charge time from 0% to 100% RSOC is 2 hours</li> </ul>
Coin-cell battery	No	No	No	No
<p><b>⚠ CAUTION:</b> 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.</p> <p><b>⚠ CAUTION:</b> 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.</p>				

## Power requirements (for computers that are shipped with a 3-cell, 45 Wh battery)

**(i) NOTE:** The information in this section is applicable to the European Union (EU) countries.



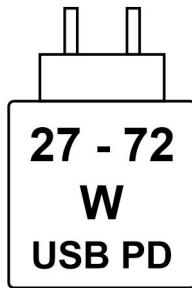
**Figure 12. Pictogram for power charging requirements**

The power that is delivered by the charger must be between a minimum of 27 Watts that is required by the radio equipment, and a maximum of 59 Watts in order to achieve the maximum charging speed.

This computer supports USB Power Delivery (PD) fast charging.

## Power requirements (for computers that are shipped with a 3-cell, 55 Wh battery)

**(i) NOTE:** The information in this section is applicable to the European Union (EU) countries.



**Figure 13. Pictogram for power charging requirements**

The power that is delivered by the charger must be between a minimum of 27 Watts that is required by the radio equipment, and a maximum of 72 Watts in order to achieve the maximum charging speed.

This computer supports USB Power Delivery (PD) fast charging.

## Display

The following table lists the display specifications of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 23. Display specifications**

Description	Option one	Option two	Option three	Option four
Display type	13.3-inch Full High Definition Plus (FHD+)	13.3-inch Full High Definition Plus (FHD+), ComfortView Plus	13.3-inch Full High Definition Plus (FHD+), ComfortView Plus	13.3-inch Full High Definition Plus (FHD+)
Touch options	No	Yes	No	Yes
Display-panel technology	In-plane Switching (IPS), White Light Emitting Diode (WLED)	In-plane Switching (IPS), White Light Emitting Diode (WLED)	In-plane Switching (IPS), White Light Emitting Diode (WLED)	In-plane Switching (IPS), White Light Emitting Diode (WLED)

**Table 23. Display specifications (continued)**

<b>Description</b>	<b>Option one</b>	<b>Option two</b>	<b>Option three</b>	<b>Option four</b>
Display-panel dimensions (active area):				
Height	178.78 mm (7.04 in.)			
Width	286.04 mm (11.26 in.)			
Diagonal	337.31 mm (13.20 in.)			
Display-panel native resolution	1920 x 1200	1920 x 1200	1920 x 1200	1920 x 1200
Luminance (typical)	300 nits	300 nits	400 nits	300 nits
Megapixels	2.304	2.304	2.304	2.304
Color gamut	45% NTSC	100% sRGB	100% sRGB	100% sRGB
Pixels Per Inch (PPI)	170	170	170	170
Contrast ratio (typical)	800:1	900:01	1200:01	1000:01
Response time (maximum)	35 ms	35 ms	35 ms	35 ms
Refresh rate	60 Hz	60 Hz	60 Hz	60 Hz
Horizontal view angle	+/- 80 degrees (min)			
Vertical view angle	+/- 80 degrees (min)			
Pixel pitch	0.149 x 0.149 mm			
Power consumption (maximum)	3.77 W	3.50 W	2.45 W	4.20 W
Anti-glare vs glossy finish	Anti-glare	Anti-glare	Anti-glare	Glossy

## Fingerprint reader (optional)

The following table lists the specifications of the optional fingerprint-reader of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 24. Fingerprint reader specifications**

<b>Description</b>	<b>Values</b>
Sensor technology	Transcapacitive
Sensor resolution	500 dpi
Sensor pixel size	108 mm x 88 mm

## GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 25. GPU—Integrated**

Controller	Memory size	Processor
Intel Graphics	Shared system memory	Intel Core Ultra 5/7

## Hardware security

The following table lists the hardware security of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 26. Hardware security**

Hardware security
Trusted Platform Module (TPM) 2.0 discrete
FIPS 140-2 certification for TPM
TCG Certification for Trusted Computing Group (TPM)
Fingerprint reader in power button with ControlVault 3+
Contacted Smart Card and ControlVault 3+
Contactless Smart Card, NFC, and ControlVault 3+
SED SSD NVMe, SSD, and hard drive (Opal and non-Opal) per SDL
Chassis intrusion detection
BIOS-TPM clear and/or system boot lock after chassis intrusion detection

## Smart-card reader

### Contactless smart-card reader

This section lists the contactless smart-card reader specifications of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1. This module is only available in computers that are shipped with Smart-card readers.

**Table 27. Contactless smart-card reader specifications**

Title	Description	Dell ControlVault 3 Plus Contactless smart-card reader with NFC
FeliCa Card Support	Reader and software capable of supporting FeliCa contactless cards	Yes
Prox (Proximity) (125 kHz) Card support	Reader and software capable of supporting Prox /Proximity/125 kHz contactless cards	No
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

**Table 27. Contactless smart-card reader specifications (continued)**

<b>Title</b>	<b>Description</b>	<b>Dell ControlVault 3 Plus Contactless smart-card reader with NFC</b>
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
NFC Peer-to-Peer Mode	Support for NFC Forum Defined Peer to Peer mode	Yes
NFC Proximity OS Interface	Enumerates NFP (Near Field Proximity) device for operating system to use	Yes
PC/SC operating system 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 operating system level drivers	Yes
Dell ControlVault support	The device connects to Dell ControlVault for usage and processing	Yes

**Table 28. Supported cards**

<b>Manufacturer</b>	<b>Card</b>
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 + 1 K Mifare SCE6.0 nonFIPS 144K Dual + 1 K Mifare SCE7.0 FIPS 144K

**Table 28. Supported cards (continued)**

<b>Manufacturer</b>	<b>Card</b>
Oberthur	ID OnDemand - 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 Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

**Table 29. Contacted smart-card reader specifications**

<b>Standards</b>	<b>Description</b>	<b>Dell ControlVault 3 smart-card reader</b>
FeliCa Card Support	Reader and software capable of supporting FeliCa contactless cards	Yes
Prox (Proximity) (125 kHz) Card support	Reader and software capable of supporting Prox /Proximity/125 kHz contactless cards	No
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
NFC Peer-to-Peer Mode	Support for NFC Forum Defined Peer to Peer mode	Yes
NFC Proximity OS Interface	Enumerates NFP (Near Field Proximity) device for operating system to use	Yes
PC/SC operating system interface	Personal Computer or 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 operating system level drivers	Yes
Dell ControlVault support	The device connects to Dell ControlVault for usage and processing	Yes

# Operating and storage environment

This table lists the operating and storage specifications of your Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.

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

**Table 30. 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
Shock (maximum)	110 G†	160 G†
Altitude range	-15.2 m to 3048 m (4.64 ft to 5518.4 ft)	-15.2 m to 10668 m (4.64 ft to 19234.4 ft)

 **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.

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

† Measured using a 2 ms half-sine pulse.

## 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 cm and 70 cm) from your eyes.
- Blink frequently to moisten your eyes, wet your eyes with water, or apply suitable eye drops.
- Take an extended break for 20 minutes every two hours.
- 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.

# Working inside your computer

## Safety instructions

Use the following safety guidelines to protect your computer from potential damage and to ensure your personal safety. Unless otherwise noted, each procedure in this document assumes that you have read the safety information that shipped with your computer.

- ⚠ WARNING:** Before working inside your computer, read the safety information that is shipped with your computer. For more safety best practices, see [Dell Regulatory Compliance Home Page](#).
- ⚠ WARNING:** Disconnect your computer from all power sources before opening the computer cover or panels. After you finish working inside the computer, replace all covers, panels, and screws before connecting your computer to an electrical outlet.
- ⚠ CAUTION:** To avoid damaging the computer, ensure that the work surface is flat, dry, and clean.
- ⚠ CAUTION:** You should only perform troubleshooting and repairs as authorized or directed by the Dell technical support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. See the safety instructions that are shipped with the product or at [Dell Regulatory Compliance Home Page](#).
- ⚠ CAUTION:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity which could harm internal components.
- ⚠ CAUTION:** To avoid damaging the components and cards, handle them by their edges, and avoid touching the pins and the contacts.
- ⚠ CAUTION:** When you disconnect a cable, pull it by its connector or its pull tab, not the cable itself. Some cables have connectors with locking tabs or thumbscrews that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending the connector pins. When connecting cables, ensure that the connector on the cable is correctly oriented and aligned with the port.
- ⚠ CAUTION:** Press and eject any installed card from the media-card reader.
- ⚠ CAUTION:** Exercise caution when handling rechargeable Li-ion batteries in laptops. Swollen batteries should not be used and should be replaced and disposed properly.

## Before working inside your computer

### Steps

1. Save and close all open files and exit all open applications.
2. Shut down your computer. For Windows operating system, click **Start > Power > Shut down**.
  - i NOTE:** If you are using a different operating system, see the documentation of your operating system for instructions.
3. Turn off all the attached peripherals.
4. Disconnect your computer from the electrical outlet.
5. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.
6. Remove any media card and optical drive from your computer, if applicable.
7. To clean the air vents, use a soft brush and move vertically.

 **NOTE:** Do not remove the base cover or use any blower to clean the vents.

## 8. Enter the Service Mode.

### Service Mode

Service Mode is used to cut off power without disconnecting the battery cable from the system board before conducting repairs in the computer.

 **CAUTION:** If you are unable to turn on the computer to put it into Service Mode, proceed to disconnect the battery cable. To disconnect the battery cable, follow the steps in [Removing the battery](#).

 **NOTE:** Ensure that your computer is shut down and the power adapter is disconnected.

- a. Press and hold the B key and the power button for 3 seconds or until the Dell logo appears on the screen.
- b. Press any key to continue.
- c. If the power adapter is not disconnected, a message prompting you to disconnect the power adapter appears on the screen. Disconnect the power adapter and then press any key to enter into the Service Mode. The Service Mode process automatically skips the following step if the **Owner Tag** of the computer is not set up in advance by the user.
- d. When the **ready-to-proceed** message appears on the screen, press any key to proceed. The computer emits three short beeps and shuts down immediately.

The computer shuts down and enters the Service Mode.

## Safety precautions

This section details the primary steps to be followed before disassembling any device or component.

Observe the following safety precautions before any installation or break-fix procedures involving disassembly or reassembly:

- Turn off the computer and all attached peripherals.
- Disconnect the computer from AC power.
- Disconnect all network cables and peripherals from the computer.
- Use an ESD field service kit when working inside your computer to avoid electrostatic discharge (ESD) damage.
- Place the removed component on an anti-static mat after removing it from the computer.
- Wear shoes with nonconductive rubber soles to reduce the chance of getting electrocuted.
- Press and hold the power button for 15 seconds to discharge the residual power in the system board.

## Standby power

Dell products with standby power must be unplugged before you open the back cover. Systems that are equipped with standby power are powered while turned off. The internal power enables the computer to be remotely turned on (Wake-on-LAN) and suspended into a sleep mode and has other advanced power management features.

## Bonding

Bonding is a method for connecting two or more grounding conductors to the same electrical potential. This is done by using a field service electrostatic discharge (ESD) kit. When connecting a bonding wire, ensure that it is connected to bare metal and never to a painted or nonmetal surface. Ensure that the wrist strap is secure and in full contact with your skin. Remove all jewelry, watches, bracelets, or rings before grounding yourself and the equipment.

## Electrostatic discharge—ESD protection

ESD is a major concern when you handle electronic components, especially sensitive components such as expansion cards, processors, memory modules, and system boards. A slight charge can damage circuits in ways that may not be obvious, such as intermittent problems or a shortened product life span. As the industry pushes for lower power requirements and increased density, ESD protection is an increasing concern.

Two recognized types of ESD damage are catastrophic and intermittent failures.

- **Catastrophic** – Catastrophic failures represent approximately 20 percent of ESD-related failures. The damage causes an immediate and complete loss of device functionality. An example of catastrophic failure is a memory module that has

received a static shock and immediately generates a "No POST/No Video" symptom with a beep code that is emitted for missing or nonfunctional memory.

- **Intermittent** – Intermittent failures represent approximately 80 percent of ESD-related failures. The high rate of intermittent failures means that most of the time when damage occurs, it is not immediately recognizable. The memory module receives a static shock, but the tracing is merely weakened and does not immediately produce outward symptoms that are related to the damage. The weakened trace may take weeks or months to melt, and in the meantime may cause degradation of memory integrity, intermittent memory errors, and so on.

Intermittent failures that are also called latent or "walking wounded" are difficult to detect and troubleshoot.

Perform the following steps to prevent ESD damage:

- Use a wired ESD wrist strap that is properly grounded. Wireless anti-static straps do not provide adequate protection. Touching the chassis before handling parts does not ensure adequate ESD protection on parts with increased sensitivity to ESD damage.
- Handle all static-sensitive components in a static-safe area. If possible, use anti-static floor pads and workbench pads.
- When unpacking a static-sensitive component from its shipping carton, do not remove the component from the anti-static packing material until you are ready to install the component. Before unwrapping the anti-static packaging, use the anti-static wrist strap to discharge the static electricity from your body. For more information about the wrist strap and ESD wrist strap tester, see [Components of an ESD Field Service Kit](#).
- Before transporting a static-sensitive component, place it in an anti-static container or packaging.

## ESD Field Service kit

The unmonitored field service kit is the most commonly used service kit. Each Field Service kit includes three main components: anti-static mat, wrist strap, and bonding wire.

 **CAUTION:** It is critical to keep ESD-sensitive devices away from internal parts that are insulated and often highly charged, such as plastic heat sink casings.

## Working Environment

Before deploying the ESD Field Service kit, assess the situation at the customer location. For example, deploying the kit for a server environment is different than for a desktop or laptop environment. Servers are typically installed in a rack within a data center; desktops or laptops are typically placed on office desks or cubicles. Always look for a large open flat work area that is free of clutter and large enough to deploy the ESD kit with additional space to accommodate the type of computer that is being repaired. The workspace should also be free of insulators that can cause an ESD event. On the work area, insulators such as styrofoam and other plastics should always be moved at least 12 inches or 30 centimeters away from sensitive parts before physically handling any hardware components.

## ESD Packaging

All ESD-sensitive devices must be shipped and received in static-safe packaging. Metal, static-shielded bags are preferred. However, you should always return the damaged component using the same ESD bag and packaging that the new part arrived in. The ESD bag should be folded over and taped shut and all the same foam packing material should be used in the original box that the new part arrived in. ESD-sensitive devices should be removed from packaging only at an ESD-protected work surface, and parts should never be placed on top of the ESD bag because only the inside of the bag is shielded. Always place parts in your hand, on the anti-static mat, in the computer, or inside an ESD bag.

## Components of an ESD Field Service kit

The components of an ESD Field Service kit are:

- **Anti-Static Mat** – The anti-static mat is dissipative and parts can be placed on it during service procedures. When using an anti-static mat, your wrist strap should be snug and the bonding wire should be connected to the anti-static mat and to any bare metal on the computer being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the anti-static mat. ESD-sensitive items are safe in your hand, on the anti-static mat, in the computer, or inside an ESD bag.
- **Wrist Strap and Bonding Wire** – The wrist strap and bonding wire can be either directly connected between your wrist and bare metal on the hardware if the anti-static mat is not required, or connect to the anti-static mat to protect hardware that is temporarily placed on the mat. The physical connection of the wrist strap and bonding wire between your skin, the anti-static mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, anti-static mat, and

bonding wire. Never use wireless wrist straps. Always be cautious that the internal wires of a wrist strap are prone to damage from normal wear and tear, and must be checked regularly with a wrist strap tester in order to avoid accidental ESD hardware damage. It is recommended to test the wrist strap and bonding wire at least once per week.

- **ESD Wrist Strap Tester** – The wires inside an ESD strap are prone to damage over time. When using an unmonitored kit, it is a best practice to regularly test the strap before each service, and at a minimum, test once per week. A wrist strap tester is the best method for doing this test. To perform the test, plug the bonding-wire of the wrist-strap into the tester while it is strapped to your wrist and push the button to test. A green LED is lit if the test is successful; a red LED is lit and an alarm sounds if the test fails.

 **NOTE:** It is recommended to always use the traditional wired ESD grounding wrist strap and protective anti-static mat when servicing Dell products. In addition, it is critical to keep sensitive parts separate from all insulator parts while servicing the computer.

## Transporting sensitive components

When transporting ESD sensitive components such as replacement parts or parts to be returned to Dell, it is critical to place these parts in anti-static bags for safe transport.

## After working inside your computer

### About this task

 **CAUTION:** Leaving stray or loose screws inside your computer may severely damage your computer.

### Steps

1. Replace all screws and ensure that no stray screws remain inside your computer.
  2. Connect any external devices, peripherals, or cables you removed before working on your computer.
  3. Replace any media cards, disks, or any other parts that you removed before working on your computer.
  4. Connect your computer to their electrical outlets.
-  **NOTE:** To exit service mode, ensure to connect the AC adapter to the power-adapter port on your computer.
5. Press the power button to turn on the computer.

## BitLocker

 **CAUTION:** If BitLocker is not suspended before updating the BIOS, the BitLocker key is not recognized the next time that you reboot the computer. You will be prompted to enter the recovery key to progress, and the computer displays a prompt for the recovery key on each reboot. If the recovery key is not known, this can result in data loss or an operating system reinstall. For more information, see Knowledge Article: [updating the BIOS on Dell computers with BitLocker enabled](#).

The installation of the following components triggers BitLocker:

- Hard disk drive or solid state drive
- System board

## Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #0
- Phillips screwdriver #1
- Plastic scribe
- Fat head (slotted) screwdriver (<4 mm)

# Screw list

- i** **NOTE:** When removing screws from a component, it is recommended to note the screw type and the quantity of screws, and then place them in a screw storage box. This is to ensure that the correct number of screws and correct screw type is restored when the component is replaced.
- i** **NOTE:** Some computers have magnetic surfaces. Ensure that the screws are not left attached to such surfaces when replacing a component.
- i** **NOTE:** Screw color may vary depending on the configuration ordered.

**Table 31. Screw list**

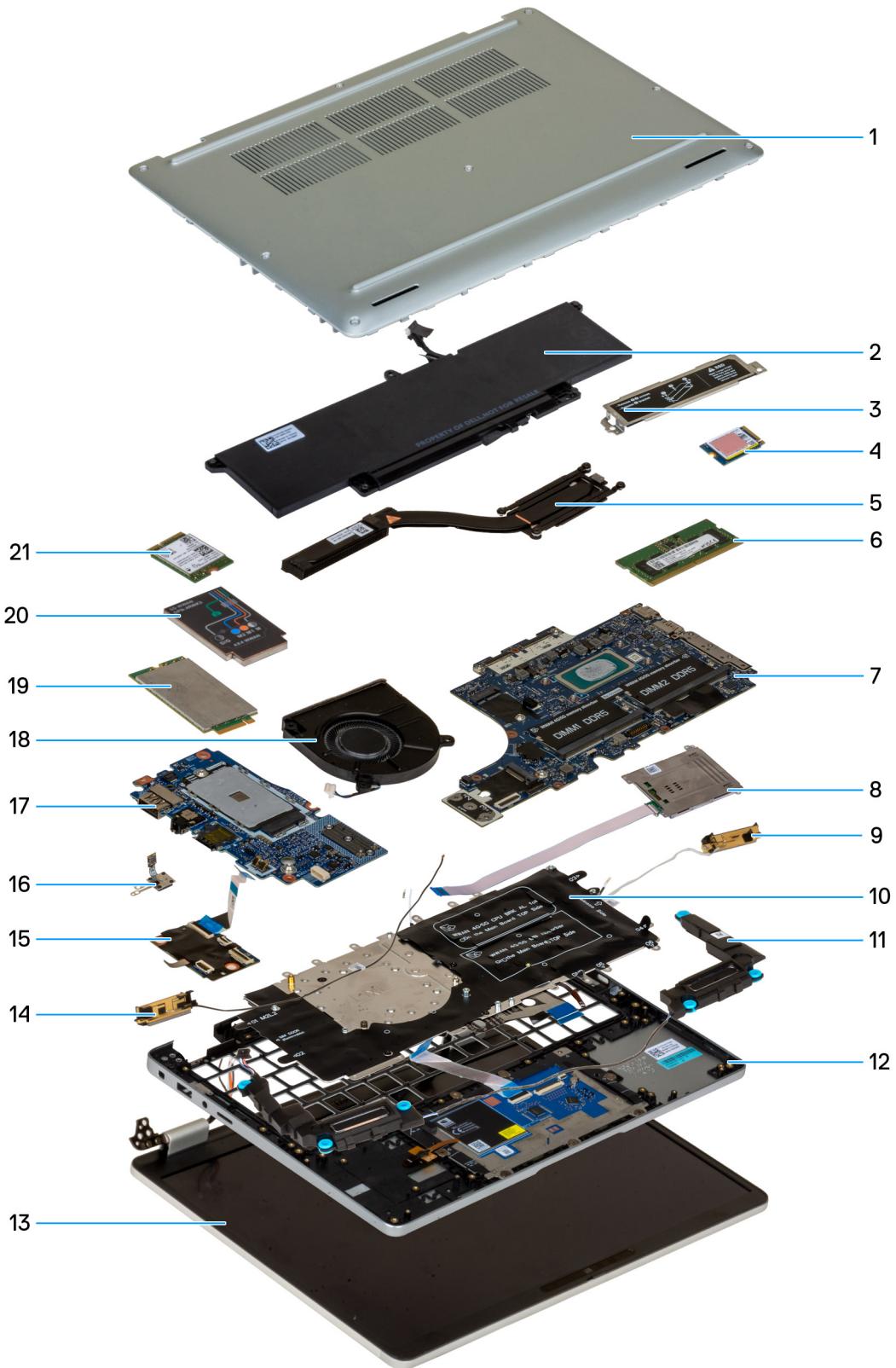
Component	Screw type	Quantity	Screw image
Base cover	Captive screws	8	
Battery	Captive screws	4	 
Display-cable bracket	M2x2.5	2	
Display hinges	M2.5x3.5	6	
Display-hinge cap	M2x2.5	2	
Display panel	M2x2.5	2	
Fan	M2x4	2	
Heat sink	Captive screws	4	
I/O board	M2x4 M1.2x1.4	1 2	 
Keyboard bracket	M2x2.5	1	
Keyboard	M2x2 M2x2.2	16 2	 
M.2 2230 solid state drive	M2x4	1	

**Table 31. Screw list (continued)**

Component	Screw type	Quantity	Screw image
M.2 2280 solid state drive	M2x4	1	
Power button Power button with fingerprint reader	M2x2	2	 
Smart-card reader	M2x2	4	   
Solid state drive thermal shield	M2x3	2	 
Speakers	M1.6x3	6	     
System board	M2.0x2.5	5	    
Type-C bracket	M2x3.5	2	 
USH-daughter board	M2x2	2	 
Wireless-card bracket	M2x2.5	1	
5G WWAN-card cable Shield	M2x4	2	 
5G WWAN-card bracket	Captive screw	1	 

## Major components of Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1

The following image shows the major components of Dell Pro 13 Plus/Dell Pro 13 Plus 2-in-1.



**Figure 14. Major Components of your Dell Pro 13 Plus**

1. Base cover
2. Battery

3. M.2 2230/M.2 2280 SSD thermal shield
4. M.2 2230 solid state drive (SSD)
5. Heat sink
6. Memory
7. System board
8. Smart-card reader (optional)
9. WLAN antenna module
10. Keyboard
11. Speakers
12. Palm-rest assembly
13. Display assembly
14. WLAN antenna module
15. USH-daughter board
16. Power button
17. I/O board
18. Fan
19. 5G WWAN card
20. 5G WWAN-card shield
21. WLAN card

**(i) NOTE:** Dell provides a list of components and their part numbers for the original computer configuration purchased. These parts are available according to warranty coverage purchased by the customer. Contact your Dell sales representative for purchase options.