

Dell Pro 14 Premium

PA14250

Owner's Manual

Opmerkingen, voorzorgsmaatregelen en waarschuwingen

 **OPMERKING:** Een OPMERKING duidt belangrijke informatie aan voor een beter gebruik van het product.

 **WAARSCHUWING:** WAARSCHUWINGEN duiden potentiële schade aan hardware of potentieel gegevensverlies aan en vertellen u hoe het probleem kan worden vermeden.

 **GEVAAR:** LET OP duidt het risico van schade aan eigendommen, lichamelijk letsel of overlijden aan.

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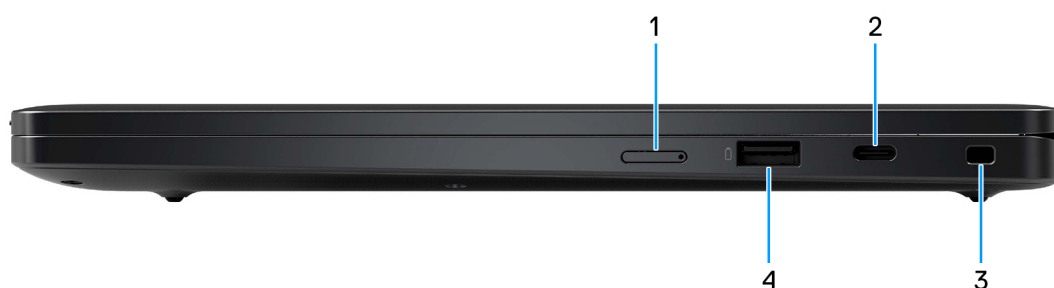
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Weergaven van de Dell Pro 14 Premium PA14250

Right



Afbeelding 1. Right view

1. nano-SIM card slot

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

2. Thunderbolt 4 port with DisplayPort Alt Mode/USB4/Power Delivery

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

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

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

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

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

3. Wedge-shaped lock slot

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

4. USB 3.2 Gen 1 port with PowerShare

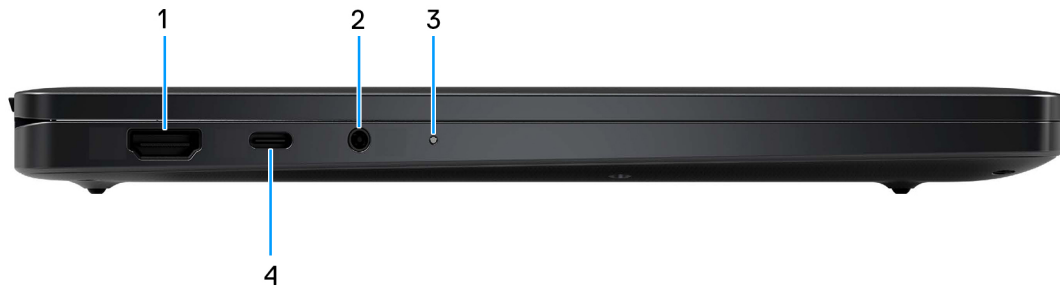
Connect devices such as external storage devices and printers.

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

OPMERKING: If your computer is turned off or in a hibernating 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.

OPMERKING: 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.

Left



Afbeelding 2. Left view

1. HDMI 2.1 port

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

2. Universal audio port

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

3. Battery indicator LED

Indicates the battery-charge status.

- Solid amber-Battery charge is low.
- Off-Battery is fully charged.

4. Thunderbolt 4 port with DisplayPort Alt Mode/USB4/Power Delivery

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

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

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

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

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

Top



Afbeelding 3. Top view

1. Camera shutter

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

2. Power button with optional fingerprint reader

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

When the computer is turned on, press the power button to put the computer into a sleep state; press and hold the power button for 10 s 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.

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

3. Speakers

Provides audio output.

4. Zero-Lattice Keyboard with battery-saving backlight

Compact keyboard with larger keycaps and power-saving mini-LED backlight. Use the keyboard to input characters and perform functions.

5. Touchpad

Move your finger on the touchpad to move the mouse pointer.

Top (for computers shipped with Collaboration Touchpad)



Afbeelding 4. Top view

1. Camera shutter

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

2. Power button with optional fingerprint reader

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

When the computer is turned on, press the power button to put the computer into a sleep state; press and hold the power button for 10 s 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.

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

3. Speakers

Provides audio output.

4. Zero-Lattice Keyboard with battery-saving backlight

Compact keyboard with larger keycaps and power-saving mini-LED backlight. Use the keyboard to input characters and perform functions.

5. Microphone control (Zoom app and Teams for work or school (Windows desktop) app support only)

Tap to mute or unmute the microphone. The microphone control indicates the status of the microphone as follows:

- Red – The microphone is muted.
- White – The microphone is unmuted.

6. Chat box control (Zoom app and Teams for work or school (Windows desktop) app support only)

Tap to show or hide the chat window. The control blinks when you receive a new chat message.

7. **Screen share control (Zoom app and Teams for work or school (Windows desktop) app support only)**

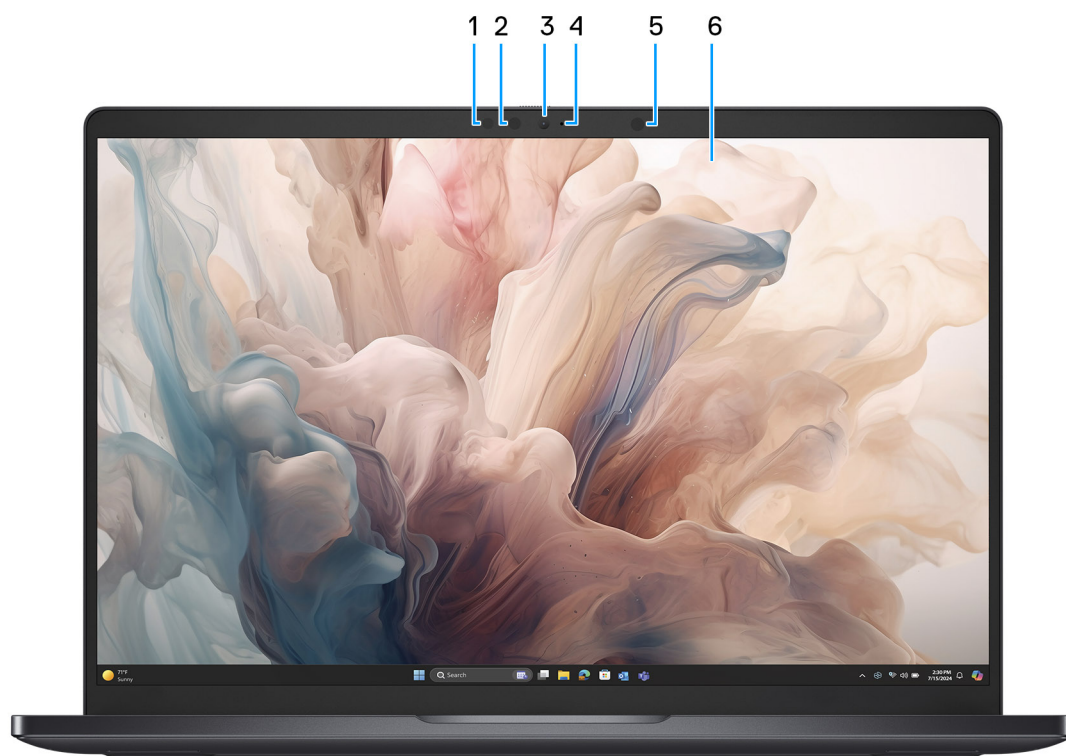
Tap to start or stop sharing your screen.

8. **Webcam control (Zoom app and Teams for work or school (Windows desktop) app support only)**

Tap to turn on or turn off the camera. The webcam control indicates the status of the camera as follows:

- Red – The camera is turned off.
- White – The camera is turned on.

Front



Afbeelding 5. Front view

1. **IR camera**

Enhances security when paired with Windows Hello face authentication.

2. **IR emitter**

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

3. **RGB camera**

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

4. **Camera indicator LED**

Turns on when the camera is in use.

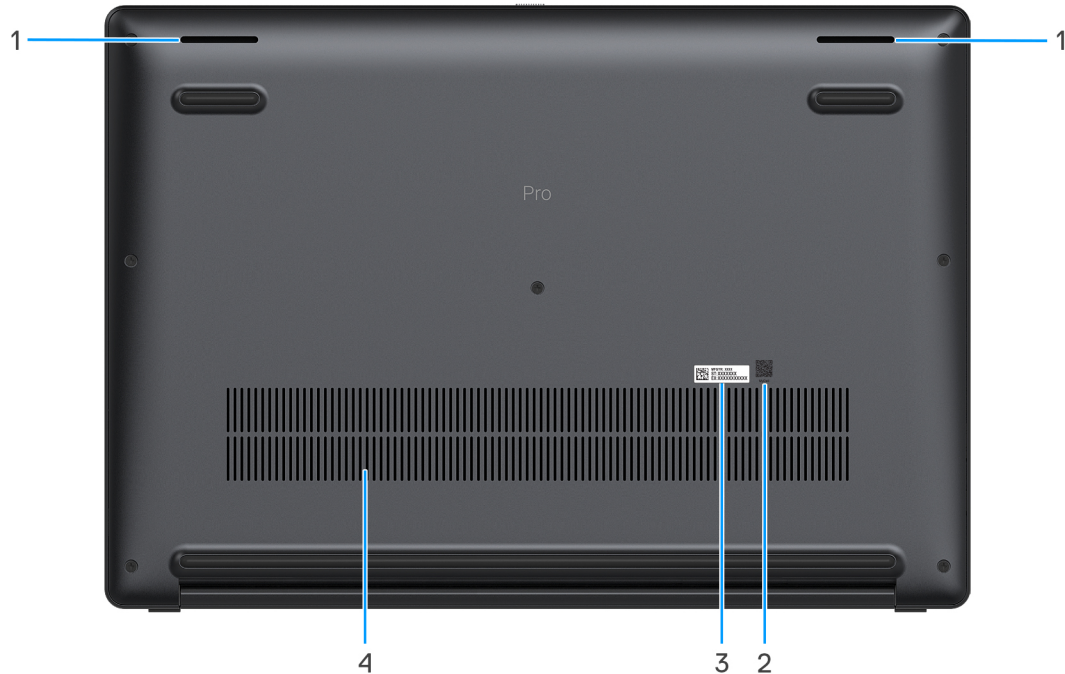
5. **Ambient Light Sensor**

Detects the ambient light and automatically adjusts the display brightness.

6. **Display panel**

Provides visual output to the user.

Bottom



Afbeelding 6. Bottom view

1. Speakers

Provide audio output.

2. MyDell QR code

MyDell is your hub for content personalized to your Dell Pro 14 Premium PA14250, including videos, articles, manuals, and 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. The Express Service Code is a numeric version of the Service Tag.

4. Air vents

Air vents provide ventilation for your computer. Clogged air vents can cause overheating and can affect your computer's performance and potentially cause hardware issues. Keep the air vents clear of obstructions and clean them regularly to prevent the build-up of dust and dirt. For more information about cleaning air vents, search for articles in the Knowledge Base Resource at the [Dell Support site](#).

Locate the Service Tag or Express Service Code label of your computer

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. The Express Service Code is a numeric version of the Service Tag.

For more information about how to find the Service Tag of your computer, search in the Knowledge Base Resource at the [Dell Support Site](#).



Afbeelding 7. Service Tag/Express Service Code location

Statuslampje voor batterijlading

In de volgende tabel vindt u het statuslampje van de batterij van uw Dell Pro 14 Premium PA14250.

Tabel 1. Gedrag van lampje voor batterijlading en -status

Voedingsbron	Gedrag van de led	System Power State (systeemenergiestand)	Batterijstatus
Voedingsadapter	Off (Uit)	S0 of S5	Volledig opgeladen
Voedingsadapter	Solid White	S0 of S5	< volledig opgeladen
Batterij	Off (Uit)	S0 of S5	11-100%
Batterij	Constant oranje (590 +/-3 nm)	S0 of S5	< 10%

- S0 (AAN): de computer is ingeschakeld.
- S4 (sluimerstand): De computer verbruikt in de sluimerstand de minste stroom dan in de aan- of uitstand. De computer staat bijna UIT. De contextdata worden naar een storageapparaat geschreven, zodat u verder kunt gaan waar u was gebleven zodra u de computer aanzet.
- S5 (UIT): de computer is uitgeschakeld.

Set up your Dell Pro 14 Premium PA14250

Over deze taak

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

Stappen

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



Afbeelding 8. Connect the power adapter and press the power button.

OPMERKING: 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.

OPMERKING: 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 a new account.

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

Tabel 2. Locate Dell apps

Resources	Description
	Dell Product Registration Register your computer with Dell.
	Dell Help & Support Access help and support for your computer.
	SupportAssist SupportAssist keeps your computer running at its best by optimizing settings, detecting issue, and removing viruses. It also notifies when updates are available for your computer. SupportAssist proactively checks the health of your computer 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 the Windows operating system. For more information, see Support Assist documentation at Dell Support Site . NOTE: In SupportAssist, click the warranty expiry date to renew or upgrade your warranty.
	Dell Command Update Updates your computer with critical fixes and latest device drivers as they become available. For more information about using Dell Command Update, see the product guides and third-party license documents at Dell Support Site .
	Dell Digital Delivery Download software applications, which are purchased but not preinstalled on your computer. For more information about using Dell Digital Delivery, search in the Knowledge Base Resource at Dell Support Site .

Specificaties van de Dell Pro 14 Premium PA14250

Dimensions and weight

The following table lists the height, width, depth, and weight of your Dell Pro 14 Premium PA14250.

Tabel 3. Dimensions and weight

Description	Values
Height:	
Front height	16.38 mm (0.64 in.)
Rear height	16.99 mm (0.67 in.)
Width	311.20 mm (12.25 in.)
Depth	216.70 mm (8.53 in.)
Weight (Minimum)  OPMERKING: The weight of your computer depends on the configuration that is offered.	1.14 kg (2.52 lb)

Processor

De volgende tabel bevat de details van de processors die worden ondersteund door uw Dell Pro 14 Premium PA14250.

Tabel 4. Processor

Omschrijving	Optie één	Optie twee	Optie drie	Optie vier
Processortype	Intel Core Ultra 5 236V vPro Enterprise	Intel Core Ultra 5 238V vPro Enterprise	Intel Core Ultra 7 266V vPro Enterprise	Intel Core Ultra 7 268V vPro Enterprise
Processorwattage	17.50 W	17.50 W	17.50 W	17.50 W
Aantal processorcores	8	8	8	8
Aantal processorthreads	8	8	8	8
Processorsnelheid	up to 4.70 GHz	up to 4.70 GHz	up to 5 GHz	up to 5 GHz
Processorcache	8 MB	8 MB	12 MB	12 MB
Geïntegreerde grafische kaart	Intel Arc Graphics 130 V	Intel Arc Graphics 130V	Intel Arc Graphics 140V	Intel Arc Graphics 140V

Chipset

De volgende tabel bevat de details van de chipset die wordt ondersteund door uw Dell Pro 14 Premium PA14250.

Tabel 5. Chipset

Omschrijving	Waarden
Chipset	Integrated in the processor
Processor	Intel Core Ultra 5/7
DRAM-busbreedte	64-bit
Flash-EEPROM	64 MB
PCIe-bus	up to Gen4

Besturingssysteem

Uw Dell Pro 14 Premium PA14250 ondersteunt de volgende besturingssystemen:

- Windows 11 24H2
- Windows 11 23H2
- Windows 10 22H2
- Ubuntu Linux 24.04

OPMERKING: Windows 10 22H2 is only for custom configured computers downgraded by end users from Windows 11. Windows 10 22H2 downgraded installations are supported by customer internal IT and is subjected to the Microsoft Windows 10 End of Support plan.

Geheugen

De volgende tabel bevat de geheugenspecificaties van uw Dell Pro 14 Premium PA14250.

Tabel 6. Geheugenspecificaties

Omschrijving	Waarden
Geheugenslots	Onboard memory
Type geheugen	LPDDR5x
Geheugensnelheid	8533 MT/s
Maximale geheugenconfiguratie	32 GB
Minimale geheugenconfiguratie	16 GB
Ondersteunde geheugenconfiguraties	• 16 GB, 1 x 16 GB, LPDDR5x, 8533 MT/s • 32 GB, 1 x 32 GB, LPDDR5x, 8533 MT/s

External ports and slots

The following table lists the external ports and slots of your Dell Pro 14 Premium PA14250.

Tabel 7. External ports and slots

Description	Values
USB ports	One USB 3.2 Gen 1 (5 Gbps) with PowerShare port
Audio port	One universal audio port
Video port(s)	- Two Thunderbolt 4 (40 Gbps) with DisplayPort Alt Mode/USB Type-C/USB4/Power Delivery ports - One HDMI 2.1 port
Media-card reader	Not supported
Power-adaptor port	Supported through the Thunderbolt 4 ports available on the computer
Security-cable slot	One wedge-shaped security slot
SIM-card slot	One nano-SIM card slot (optional)

Interne slots

De volgende tabel geeft de interne slots weer van uw Dell Pro 14 Premium PA14250.

Tabel 8. Interne slots

Omschrijving	Waarden
M.2	- One M.2 2230 slot for solid-state drive - One M.2 3052 slot for 5G WWAN card  OPMERKING: Zoek in de Knowledge Base Resource op de website van Dell Support voor meer informatie over de kenmerken van de verschillende soorten M.2-kaarten.

Draadloze module

De volgende tabel bevat de specificaties van de WLAN-module (Wireless Local Area Network) die op uw Dell Pro 14 Premium PA14250 wordt ondersteund.

Tabel 9. Specificaties van de draadloze module

Omschrijving	Waarden
Modelnummer	Intel WiFi 7 BE201
Overdrachtssnelheid	5670 Mbps
Ondersteunde frequentiebanden	2.40 GHz/5 GHz/6 GHz
Draadloze standaarden	- WiFi 802.11a/b/g - Wi-Fi 4 (WiFi 802.11n) - Wi-Fi 5 (WiFi 802.11ac) - Wi-Fi 6E (WiFi 802.11ax) - Wi-Fi 7 (WiFi 802.11be)
Versleuteling	64-bit/128-bit WEP - AES-CCMP

Tabel 9. Specificaties van de draadloze module (vervolg)

Omschrijving	Waarden
	• TKIP
Bluetooth draadloze kaart	Bluetooth 5.4

WWAN-module

De volgende tabel bevat de specificaties van de WWAN-module (Wireless Wide Area Network) die op uw Dell Pro 14 Premium PA14250 wordt ondersteund.

OPMERKING: De WWAN-module is alleen beschikbaar op bepaalde configuraties en in bepaalde regio's.

OPMERKING: De beschikbaarheid van de eSIM-functie op deze module hangt af van uw regio.

OPMERKING: Voor instructies voor het instellen van SIM- of eSIM-verbindingen op uw computer raadpleegt u de *SIM-/eSIM-installatiehandleiding voor Windows*. Deze is beschikbaar bij uw productdocumentatie op de [website van Dell Support](#).

Tabel 10. Specificaties WWAN-module

Omschrijving	Waarden
Modelnummer	Qualcomm Snapdragon X72 Global 5G Modem (DW5934e)
Vormfactor	M.2 3052 Key-B
Host-interface	PCIe Gen3
Netwerkstandaard	NR FR1(Sub6) FDD/TDD, LTE FDD/TDD, WCDMA/HSPA+, GPS/GLONASS/Galileo/Beidou
Overdrachtssnelheid van data	• 5G NR: DL 4.14Gbps/UL 900Mbps • LTE: DL 2.0Gbps (CAT20)/UL 211Mbps (CAT18) • UMTS: DL DC-HSPA+ Rel8:42 Mbps/UL 5.76 Mbps
Operationele frequentiebanden	• NR(n1, n2, n3, n5, n7, n8, n12, n13, n14, 18, n20, n25, n26, n28, n29, n30, n38, n40, n41, n48, n66, n67, n70, n71, n75, n76, n77, n78, n79, n91, n92, n93, n94) • 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, B67, B68, B70, B71) • WCDMA/HSPA+ (1, 2, 4, 5, 8)
Voeding	DC 3.135 V to 3.63 V, typical 3.3 V
Simkaart	Supported through external SIM slot
eSIM met dual SIM (DSSA)	Supported
Antennediversiteit	Supported
Radio aan/uit	Supported
Activeren op draadloos	Supported in Morden Standby mode
Temperatuur	• Normal operating temperature: -30°C to +70°C • Extended operating temperature: -40°C to +85°C • Storage temperature: -40°C to +85°C

Tabel 10. Specificaties WWAN-module (vervolg)

Omschrijving	Waarden
Antenneconnector	• WWAN Main Antenna x 1 • WWAN Diversity Antenna x 1 • 4x4 MIMO Antenna x 2
 OPMERKING: Zie de knowledge base-bron op de website van Dell Support voor instructies om het IMEI-nummer (International Mobile Station Equipment Identity) van uw computer te vinden.	

Audio

De volgende tabel bevat de audiospecificaties van uw Dell Pro 14 Premium PA14250.

Tabel 11. Audiospecificaties

Omschrijving	Waarden
Audiocontroller	Cirrus CS42L43 and Cirrus CS35L56
Stereoconversie	Supported
Interne audio-interface	High-definition audio
Externe audio-interface	Universal audio port
Aantal luidsprekers	Four
Interne luidsprekerversterker	Supported (audio codec integrated)
Externe volumeregelaars	Keyboard shortcut controls
Luidsprekerweergave:	
	Gemiddeld
	2 W
	Piek
	2.5 W
Microfoon	Digital-array microphones in camera assembly

Storage

In dit gedeelte vindt u de opties voor storage op uw Dell Pro 14 Premium PA14250.

Your computer supports the following storage configuration:

- One M.2 2230 solid-state drive

The M.2 2230 solid-state drive is the primary drive of your computer.

Tabel 12. Storagespecificaties

Storagetype	Interfacetype	Capaciteit
M.2 2230 solid state drive, Class 35	TLC PCIe Gen4 NVMe	256 GB/512 GB/1 TB
M.2 2230 solid-state drive, Self-encrypting drive, Opal 2.0, Class 35	TLC PCIe Gen4 NVMe	512 GB
M.2 2230 solid state drive, Class 25	QLC PCIe Gen4 NVMe	2 TB

Toetsenbord

De volgende tabel bevat de specificaties van het toetsenbord van uw Dell Pro 14 Premium PA14250.

Tabel 13. Toetsenbordspecificaties

Omschrijving	Waarden
Type toetsenbord	Battery-saving mini LED backlit zero-lattice keyboard
Toetsenbordindeling	QWERTY
Aantal toetsen	- English US, English International, Arabic, Canada bilingual (MUI), Chinese traditional, French-Canadian, Greek, Hebrew, Korean, Russian, Thai, Ukrainian: 79 keys - French-Canadian Quebec, Belgian, Bulgarian, Czech & Slovakian (MUI), Danish, English UK, Estonian, French European, German, Hungarian, Icelandic, Italian, Nordic (MUI), Norwegian, Portugese Iberian, Slovenian, Spanish (Castillian), Spanish (Latin America), Swedish/Finnish, Swiss European (MUI), Turkish, Turkish (F): 80 keys - Japanese: 83 keys - Portuguese Brazilian: 81 keys
Toetsenbordformaat	X=18.05 mm key pitch Y=18.05 mm key pitch
Sneltoetsen voor het toetsenbord	Op sommige toetsen op het toetsenbord staan twee symbolen. Deze toetsen kunnen worden gebruikt om andere tekens te typen of om secundaire functies uit te voeren. Druk op Shift en de gewenste toets om het andere teken in te voeren. Druk op Fn en de gewenste toets om secundaire functies uit te voeren.  OPMERKING: U kunt het primaire gedrag van de functietoetsen (F1-F12) wijzigen door Function Key Behavior te wijzigen in het BIOS-setupprogramma.  OPMERKING: Als Copilot in Windows niet beschikbaar is op uw computer, start u de Windows-zoekfunctie door op de Copilot-toets te drukken. U kunt meer informatie over Copilot in Windows vinden in het knowledge base-artikel op de website van Dell Support.

Keyboard shortcuts of Dell Pro 14 Premium PA14250

 **OPMERKING:** 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. 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 **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**.

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

Tabel 14. Function key primary behavior

Function key	Primary behavior
F1	Mute or unmute audio
F2	Decrease volume
F3	Increase volume
F4	Microphone Mute
F5	KB Illumination/Backlight
F6	Decrease brightness
F7	Increase brightness
F8	Switch to external display
F9	Stealth mode
F10	Print screen
F11	Home
F12	End

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

Tabel 15. Secondary behavior

Function key	Secondary behavior
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 + F7	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 + Ctrl	Open the application menu
Fn + Esc	Toggle between multimedia and function key behavior
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
Copilot	Launch Copilot in Windows OPMERKING: If Copilot in Windows is not available on your computer, the Copilot key launches Recall. If both Recall and Copilot in Windows are not available on your computer, the Copilot key launches Windows Search. For more information

Tabel 15. Secondary behavior (vervolg)

Function key	Secondary behavior
	about Copilot in Windows and Recall, search in the Knowledge Base Resource at the Dell Support Site .

Camera

De volgende tabel bevat de specificaties van de camera van uw Dell Pro 14 Premium PA14250.

Tabel 16. Specificaties camera

Omschrijving	Waarden
Aantal camera's	Two
Type camera	There are 2 camera options: - IR Camera - IR Camera with Presence Detection (Synaptics)
Cameralocatie	Front camera
Type camerasensor	CMOS sensor technology
Cameraresolutie:	
Stilstaande beelden	8.0 megapixel
Video	2560x1440 at 30 fps <i>i</i> OPMERKING: The default resolution for video is set at 1080p. For more information about changing the camera resolution, search for information about changing the camera resolution in Windows 11 at the Microsoft Support Site .
Resolutie infraroodcamera:	
Stilstaande beelden	0.23 megapixel
Video	640x360 at 30 fps
Diagonale kijkhoek:	
Camera	88.1 degrees
Infraroodcamera	86.6 degrees

Touchpad

De volgende tabel bevat de specificaties van de touchpad van uw Dell Pro 14 Premium PA14250.

Tabel 17. Specificaties touchpad

Omschrijving	Waarden
Touchpad-resolutie:	>300 dpi
Afmetingen van touchpad:	
Horizontaal	125 mm (4.92 in.)

Tabel 17. Specificaties touchpad (vervolg)

Omschrijving		Waarden
	Verticaal	75 mm (2.95 in.)
Touchpadbewegingen		Voor meer informatie over touchpadbewegingen die in Windows beschikbaar zijn, raadpleeg het Microsoft Knowledge Base-artikel op de supportwebsite van Microsoft .

Touchpad with collaboration controls (optional)

The following table lists the touchpad specifications of your Dell Pro 14 Premium PA14250 (for computers shipped with Collaboration Touchpad).

Tabel 18. Touchpad specifications

Description		Values
Touchpad type		Collaboration Touchpad
Collaboration controls on touchpad		Four controls are available to control video, share screen, chat, and mute functions during conference calls. The controls are visible on the touchpad during any conference calls. Compatible with Zoom and Teams for work or school.
Collaboration controls settings		- Control brightness manually or configure icon brightness to automatically adjust to the ambient light. - Customize settings to activate collaboration controls with a single tap or a double tap. - Customize specific controls to be activated or deactivated.
Collaboration controls functionality		Video icon: Turn on or off the camera. - White icon: The camera is turned on. - Red icon: The camera is off. Share screen icon: Tap once to share your screen. Tap again to stop sharing. Chat icon: Show or hide the chat window. The icon blinks when you receive a new chat message. Microphone icon: Turn on or mute the microphone. - White icon: The microphone is turned on. - Red icon: The microphone is muted.
Required apps for collaboration controls		- Dell Optimizer Version 4.2.0.0 and higher - Zoom Client Version 5.9.3 and higher - Teams for work or school (Windows desktop) Version 1.6.00.24078 and higher
Touchpad resolution:		
	Horizontal	>300 dpi
	Vertical	Not supported
Touchpad dimensions:		
	Horizontal	125 mm (4.92 in.)
	Vertical	71 mm (2.79 in.)
Touchpad gestures		For more information about touchpad gestures available on Windows, see the Microsoft Knowledge Base article at Microsoft Support Site .

Tabel 18. Touchpad specifications (vervolg)

Description	Values
 OPMERKING: To enjoy the collaboration touchpad (CTP) controls feature on your keyboard, ensure that you have the latest versions of the Dell Optimizer app and Zoom or Teams for work or school that is installed on your computer. Dell Optimizer offers a modular installation which allows you to select the modules you want to install. Install the collaboration touchpad module within the Dell Optimizer app to enjoy the functionality of collaboration controls. For more information, search for <i>Dell Optimizer</i> in the Knowledge Base Resource at the Dell Support Site .	
 OPMERKING: For more information about how to configure and use your collaboration controls, search for the Collaboration Touchpad Reference Guide in the Knowledge Base Resource at Dell Support Site . Or, watch the video at Dell Collaboration Touchpad .	
 OPMERKING: Collaboration Touchpad is supported only on Teams for work or school (Windows desktop) application. Teams for home and Teams on web are not supported.	

Power adapter

The following table lists the power adapter specifications of your Dell Pro 14 Premium PA14250.

Tabel 19. Power-adapter specifications

Description	Option one	Option two	Option three
Type	60 W AC ultralight mini adapter, USB Type-C	65 W AC adapter, USB Type-C	100 W AC adapter, USB Type-C
Power-adapter dimensions:			
Height	22 mm (0.86 in.)	28 mm (1.10 in.)	26.50 mm (1.04 in.)
Width	55 mm (2.16 in.)	51 mm (2.01 in.)	60.00 mm (2.36 in.)
Depth	66 mm (2.59 in.)	112 mm (4.41 in.)	122.00 mm (4.80 in.)
Input voltage	100 VAC to 240 VAC	100 VAC to 240 VAC	100 VAC to 240 VAC
Input frequency	50 Hz to 60 Hz	50 Hz to 60 Hz	50 Hz to 60 Hz
Input current (maximum)	1.7 A	1.7 A	1.7 A
Output current (continuous)	20 V/3 A 15 V/3 A 9 V/3 A 5 V/3 A	20 V/3.25 A 15 V/3 A 9 V/3 A 5 V/3 A	20 V/5 A 15 V/3 A 9 V/3 A 5 V/3 A
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 40°C (32°F to 104°F)
Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)
 WAARSCHUWING: 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.			

Power adapter requirements of Dell Pro 14 Premium PA14250 (for computers shipped with 2-cell, 40 Wh battery)

OPMERKING: If you did not purchase the Dell-branded power adapter that is recommended for your computer, ensure that the power adapter you use meets the following requirements.

The following table lists the power adapter requirements for your Dell Pro 14 Premium PA14250.

Tabel 20. Power adapter requirements

Description	Value
Power that is required from a power adapter to achieve optimal performance	100 W
Power that charges the computer at a slower speed OPMERKING: A warning message may appear informing you about the use of a lower-powered adapter and slower charging speed.	Less than 100 W
Minimum power that is required from a power adapter to operate the computer and charge the battery OPMERKING: 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	Supported OPMERKING: Ensure that the computer is connected to a 100 W power adapter for this feature to be supported. OPMERKING: ExpressCharge mode must also be enabled in the BIOS Setup screen. Select Power > Battery Configuration > ExpressCharge , then press Enter .

Power adapter requirements of Dell Pro 14 Premium PA14250 (for computers shipped with 3-cell, 60 Wh battery)

OPMERKING: If you did not purchase the Dell-branded power adapter that is recommended for your computer, ensure that the power adapter you use meets the following requirements.

The following table lists the power adapter requirements for your Dell Pro 14 Premium PA14250 (for computers that are shipped with 3-cell, 60 Wh battery).

Tabel 21. Power adapter requirements

Description	Value
Power that is required from a power adapter to achieve optimal performance	100 W
Power that charges the computer at a slower speed OPMERKING: A warning message may appear informing you about the use of a lower-powered adapter and slower charging speed.	Less than 100 W
Minimum power that is required from a power adapter to operate the computer and charge the battery OPMERKING: A warning message appears informing you about the use of a lower-powered adapter and slower charging speed.	27 W

Tabel 21. Power adapter requirements (vervolg)

Description	Value
USB Power Delivery (PD) fast charging	Supported
ExpressCharge mode	Supported OPMERKING: Ensure that the computer is connected to a 100 W power adapter for this feature to be supported. OPMERKING: ExpressCharge mode must also be enabled in the BIOS Setup screen. Select Power > Battery Configuration > ExpressCharge , then press Enter .

Battery

The following table lists the battery specifications of your Dell Pro 14 Premium PA14250.

Tabel 22. Battery specifications

Description	Option one	Option two	Option three	Option four
Battery type	2-cell, 40 Wh, Lithium Ion, ExpressCharge 2.0, ExpressCharge Boost	2-cell, 40 Wh, Lithium Ion, ExpressCharge 2.0, ExpressCharge Boost, Long Life Cycle	3-cell, 60 Wh, Lithium Ion, ExpressCharge, ExpressCharge Boost	3-cell, 60 Wh, Lithium Ion, ExpressCharge, ExpressCharge Boost, Long Life Cycle
Battery voltage	7.80 VDC	7.80 VDC	11.70 VDC	11.70 VDC
Battery weight (maximum)	155 gm	155 gm	215 gm	215 gm
Battery dimensions:				
Height	6.15 mm (0.24 in.)	6.15 mm (0.24 in.)	6.15 mm (0.24 in.)	6.15 mm (0.24 in.)
Width	248 mm (9.76 in.)	248 mm (9.76 in.)	248 mm (9.76 in.)	248 mm (9.76 in.)
Depth	65.10 mm (2.56 in.)	65.10 mm (2.56 in.)	65.10 mm (2.56 in.)	65.10 mm (2.56 in.)
Temperature range:				
	Operating	0°C to 60°C (32°F to 140°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 60°C (-4°F to 140°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.			
Battery charging time (approximate)	Express Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 45°C normal express charge	Express Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 45°C normal express charge	Express Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 45°C normal express charge	Express Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 45°C normal express charge

Tabel 22. Battery specifications (vervolg)

Description	Option one	Option two	Option three	Option four
application (Power option). For more information about MyDell application, search in the Knowledge Base Resource at Dell Support Site.	46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours Standard Charge/ Predominately AC User Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours Express Charge Boost Charge Method (Fast Charge for Initial 35%): 16 - 45°C target charge time from 0 to 35% RSOC is 20 mins for Accelerated Charge	46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours Standard Charge/ Predominately AC User Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours Express Charge Boost Charge Method (Fast Charge for Initial 35%): 16 - 45°C target charge time from 0 to 35% RSOC is 20 mins for Accelerated Charge	46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours Standard Charge/ Predominately AC User Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours Express Charge Boost Charge Method (Fast Charge for Initial 35%): 16 - 45°C target charge time from 0 to 35% RSOC is 20 mins for Accelerated Charge	46 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours Standard Charge/ Predominately AC User Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 50°C maximum allowable charge time from 0 to 100% RSOC is 3 hours Express Charge Boost Charge Method (Fast Charge for Initial 35%): 16 - 45°C target charge time from 0 to 35% RSOC is 20 mins for Accelerated Charge
Coin-cell battery	Not Supported	Not Supported	Not Supported	Not Supported
 WAARSCHUWING: 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.  WAARSCHUWING: Dell Technologies recommends that you charge the battery regularly for optimal power consumption.				

Beeldscherm

De volgende tabel bevat de beeldschermspecificaties van uw Dell Pro 14 Premium PA14250.

Tabel 23. Beeldschermspecificaties

Omschrijving	Optie één	Optie twee	Optie drie
Type beeldscherm	Full High Definition Plus (FHD+)	Quad High Definition Plus (QHD+), Battery saving, ComfortView Plus	Full High Definition Plus (FHD+), Battery saving, ComfortView Plus
Aanraakopties	No	Yes	No
Technologie beeldschermdeelvenster	Wide-viewing angle (WVA/IPS)	OLED	Wide-viewing angle (WVA/IPS)
Afmetingen van het beeldschermdeelvenster (actief gebied):			
Hoogte	188.50 mm	188.50 mm	188.50 mm

Tabel 23. Beeldschermspecificaties (vervolg)

Omschrijving		Optie één	Optie twee	Optie drie
	Breedte	301.60 mm	301.60 mm	301.60 mm
	Diagonaal	355.60 mm	355.60 mm	355.60 mm
Standaardresolutie van het beeldschermdeelvenster		1920 x 1200	2880 x 1800	1920x1200
Helderheid (typisch voorbeeld)		300 nits	400 nits	400 nits
Megapixels		2.3	5.1	2.3
Kleurengamma		100% sRGB	100% DCIP3	sRGB 100% typ.
Pixels per inch (PPI)		162 ppi	242 ppi	162 ppi
Contrastverhouding (standaard)		800:1	1000000:1	1200:1
Reactietijd (maximum)		35 ms	1 ms	35 ms
Vernieuwingsfrequentie		30 Hz to 60 Hz	30 Hz to 60 Hz	30 Hz to 60 Hz
Horizontale kijkhoek		+/- 85 degrees (typ.)	+/- 85 degrees (typ.)	+/- 85 degrees (typ.)
Verticale kijkhoek		+/- 85 degrees (typ.)	+/- 85 degrees (typ.)	+/- 85 degrees (typ.)
Pixelpitch		0.11 mm x 0.15 mm	0.10 x 0.10 mm	0.15 x 0.15 mm
Energieverbruik (maximaal)		3.68 W	5.63 W	2.50 W
Antireflectie vs. glanzende afwerking		Anti-glare	Anti-reflection	Anti-glare

Fingerprint reader (optional)

The following table lists the specifications of the optional fingerprint-reader of your Dell Pro 14 Premium PA14250.

 **OPMERKING:** The fingerprint reader is on the power button.

Tabel 24. Fingerprint reader specifications

Description	Values
Sensor technology	Trans-capacitive sensing
Sensor resolution	500 dpi
Sensor pixel size	• X: 108 • Y: 88

Sensor

De volgende tabel bevat de interne slots van uw Dell Pro 14 Premium PA14250.

Tabel 25. Sensor

Sensor support
Accelerometer (ST Micro LIS2DW12TR): On the base of the system board
Accelerometer (ST Micro LIS2DW12TR): On the hinge-up mid-board in the upsell configuration of laptop MIPI RGB+IR camera
Ambient Light Sensor (optional)
Proximity for SAR compliance (for the WWAN module) Near Field Proximity Sensor
Hall Effect Sensor
Sensor Hub (integrated)

GPU - geïntegreerd

De volgende tabel bevat de specificaties van de geïntegreerde grafische processor (GPU) die wordt ondersteund door uw Dell Pro 14 Premium PA14250.

Tabel 26. GPU - geïntegreerd

Controller	Geheugengrootte	Processor
Intel Arc Graphics 130V	Shared system memory	Intel Core Ultra 5
Intel Arc Graphics 140V	Shared system memory	Intel Core Ultra 7

Multiple display support matrix

The following table lists the multiple display support matrix for your Dell Pro 14 Premium PA14250.

Tabel 27. Multiple display support matrix

Graphics Card	Direct Graphics Controller Direct Output Mode	Supported external displays with computer internal display on	Supported external displays with computer internal display off
Intel Arc Graphics	Not applicable	3	4

Hardwarebeveiliging

De volgende tabel bevat de hardwarebeveiliging van uw Dell Pro 14 Premium PA14250.

Tabel 28. Hardware security

Hardware security
Trusted Platform Module (TPM) 2.0 discrete
FIPS 140-2 certification for TPM
Trusted Computing Group (TCG) Certification for TPM
SED SSD NVMe, SSD (Opal and non-Opal) per SDL
One wedge-shaped lock slot
SED (Opal 2.0 only - PCIe Interface)
Windows Hello - Fingerprint Reader (optional)
Mechanical privacy shutter for camera (only for metal laptops)

Tabel 28. Hardware security (vervolg)

Hardware security
Chassis Intrusion Detection

Bedienings- en storageomgeving

Deze tabel bevat de specificaties voor het besturingssysteem en de storage van uw Dell Pro 14 Premium PA14250.

Luchtcontaminatieniveau: G1 zoals gedefinieerd door ISA-S71.04-1985

Tabel 29. Computeromgeving

Omschrijving	Operationeel	Storage
Temperatuurbereik	0°C to 35°C (32°F to 95°F)	-40°C to 65°C (-40°F to 149°F)
Relatieve vochtigheid (maximum)	10% to 90% (non-condensing)	0% to 95% (non-condensing)
Trilling (maximaal)*	0.66 GRMS	1.30 GRMS
Schokken (maximaal)	110 G†	160 G†
Bereik hoogte	-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)
 WAARSCHUWING: De gebruikstemperatuur en opslagtemperatuur kunnen verschillen per onderdeel, dus het gebruik of opslag van het apparaat buiten dit bereik kan van invloed zijn op de prestaties van specifieke onderdelen.		

* Gemeten met een willekeurig trillingsspectrum dat de gebruikersomgeving nabootst.

† gemeten met een halve sinuspuls van 2 ms.

Dell supportbeleid

Raadpleeg voor informatie over het supportbeleid van Dell het Knowledge Base-artikel op de [website van Dell Support](#).

ComfortView Plus

 **GEVAAR:** 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.

Dell Optimizer

Dell Optimizer is an AI-based software application that allows you to customize your computer settings for power and battery, collaboration touchpad, and more.

For Dell Pro 14 Premium PA14250 with Dell Optimizer, you can:

- Extend the battery life of your computer with Intelligent Battery Extender and Dynamic Charge.
- Tune the performance, power consumption, cooling, and fan noise with selectable thermal modes.
- Access Zoom and Microsoft Teams meeting controls with the Collaboration Touchpad.
- Access and secure your computer depending on your physical presence.
- Download and redeem the apps that are purchased with your computer.

For more information about configuring and using these features, search for *Dell Optimizer* at the [Dell Support Site](#).

In de computer werken

Veiligheidsinstructies

Volg de onderstaande veiligheidsrichtlijnen om uw persoonlijke veiligheid te garanderen en de computer te beschermen tegen mogelijke schade. Tenzij anders aangegeven, wordt er bij elke procedure in dit document van uitgegaan dat u de veiligheidsinformatie hebt gelezen die bij uw computer is geleverd.

 **GEVAAR:** Lees de veiligheidsinformatie die bij uw computer is geleverd voordat u aan de onderdelen in de computer gaat werken. Raadpleeg voor meer informatie over aanbevolen werkwijzen op het gebied van veiligheid de [Dell website over de naleving van regelgeving](#).

 **GEVAAR:** Ontkoppel uw computer van alle voedingsbronnen voordat u de computerbehuizing of -panelen opent. Zodra u klaar bent met de werkzaamheden binnen de computer, plaatst u de behuizing en alle panelen en schroeven terug voordat u uw computer weer aansluit op een stopcontact.

 **WAARSCHUWING:** Zorg ervoor dat het werkoppervlak plat, droog en schoon is om schade aan de computer te voorkomen.

 **WAARSCHUWING:** U mag alleen probleemoplossing en reparaties laten uitvoeren door technische supportteams die door Dell erkend of geïnstureerd worden. Schade als gevolg van onderhoudswerkzaamheden die niet door Dell zijn goedgekeurd, valt niet onder de garantie. Zie de veiligheidsinstructies die bij het product worden geleverd of kijk op de [Dell startpagina voor naleving van wetgeving](#).

 **WAARSCHUWING:** Raak een component pas aan nadat u zich hebt geaard door een ongeverfd metalen oppervlak van het chassis aan te raken, zoals het metaal rondom de openingen voor de kaarten aan de achterkant van de computer. Raak tijdens het werk ook regelmatig een ongeverfd metalen oppervlak aan om statische elektriciteit weg te leiden die de interne componenten kan beschadigen.

 **WAARSCHUWING:** Pak de componenten en kaarten bij de rand vast en kom niet aan de pinnetjes en de contactpunten om beschadigingen te voorkomen.

 **WAARSCHUWING:** Verwijder kabels door aan de connector of het treklijpje te trekken, niet aan de kabel zelf. Sommige kabels hebben aansluitingen met vergrendelingslipjes of duimschroeven die u moet ontgrendelen voordat u de kabel loskoppelt. Houd kabels bij het loskoppelen uitgelijnd om te voorkomen dat de connectorpinnetjes verbuigen. Zorg er bij het aansluiten van kabels voor dat de connector op de kabel op de juiste manier is gepositioneerd en is uitgelijnd met de poort.

 **WAARSCHUWING:** Druk op eventueel geïnstalleerde kaarten in de optionele mediakaartlezer om ze uit te werpen.

 **WAARSCHUWING:** Wees voorzichtig bij het omgaan met oplaadbare lithium-ionbatterijen in laptops. Opgezwollen batterijen dienen niet gebruikt te worden en dienen te worden vervangen en op juiste wijze weg te worden gegooid.

Voordat u aan de onderdelen in de computer gaat werken

Stappen

1. Sluit alle geopende bestanden op en sluit deze, en sluit alle geopende applicaties af.
2. Sluit de computer af. Voor het Windows-besturingssysteem klikt u op **Start** >  **Energiebeheer** > **Afsluiten**.

 **OPMERKING:** Wanneer u een ander besturingssysteem gebruikt, raadpleegt u de documentatie van uw besturingssysteem voor instructies.

3. Schakel alle aangesloten randapparatuur uit.

4. Haal de stekker van uw computer uit het stopcontact.
5. Koppel alle aangesloten netwerkapparaten en randapparatuur, zoals het toetsenbord, de muis, de monitor enz. los van uw computer.
6. Verwijder, indien van toepassing, alle mediakaarten en het optische station uit uw computer.
7. Activeer de servicemodus.

Servicemodus

De servicemodus wordt gebruikt om de stroom af te sluiten, zonder de batterijkabel los te koppelen van de systeemkaart voordat reparaties in de computer worden uitgevoerd.



WAARSCHUWING: Als u de computer niet kunt inschakelen om deze in de servicemodus te zetten, gaat u verder met het loskoppelen van de batterijkabel. Volg de stappen in [De batterij verwijderen](#) om de batterijkabel los te koppelen.



OPMERKING: Zorg ervoor dat uw computer is uitgeschakeld en de voedingsadapter is losgekoppeld.

- a. Houd de B-toets op het toetsenbord ingedrukt en druk gedurende 3 seconden op de aan/uit-knop of totdat het Dell logo op het scherm verschijnt.
- b. Druk op een willekeurige toets om door te gaan.
- c. Als de voedingsadapter niet is losgekoppeld, wordt er een bericht op het scherm weergegeven waarin u wordt gevraagd om de voedingsadapter te verwijderen. Koppel de voedingsadapter los en druk vervolgens op een willekeurige toets om de servicemodus te openen. In het proces voor de servicemodus wordt deze stap automatisch overgeslagen als de **eigenaarstag** van de computer niet vooraf is ingesteld door de gebruiker.
- d. Druk op een willekeurige toets om door te gaan wanneer op het scherm het bericht wordt weergegeven over de **gereedheid om verder te gaan**. Het systeem geeft drie korte pieptonen af en wordt onmiddellijk afgesloten. De computer wordt afgesloten en gaat naar de servicemodus.

Veiligheidsmaatregelen

In dit gedeelte worden de belangrijkste stappen beschreven die u moet volgen voordat u met demontage begint.

Neem de volgende voorzorgsmaatregelen in acht voordat u een installatie of break-fix-procedures uitvoert die montage of demontage vereisen:

- Zet de computer uit, inclusief eventueel bijbehorende randapparatuur.
- Koppel de computer los van de netvoeding.
- Koppel alle netwerkkabels en randapparatuur los van de computer.
- Gebruik een ESD-servicekit wanneer u werkzaamheden aan de binnenkant van een uitvoert om schade door elektrostatische ontlading (ESD) te voorkomen.
- Plaats het verwijderde onderdeel op een antistatische mat nadat u het uit de computer hebt verwijderd.
- Draag schoenen met niet-geleidende rubberen zolen om de kans op elektrocutie te verminderen.
- Door ont koppeling en het ingedrukt houden van de aan-/uitknop gedurende 15 seconden zou de reststroom in de systeemkaart moeten ontladen.

Stand-bystand

Dell producten met stand-byvoeding moeten worden losgekoppeld voordat u het achterpaneel opent. Systemen die zijn uitgerust met de stand-byvoeding worden gevoed terwijl ze zijn uitgeschakeld. Door de interne voeding kan de computer op afstand worden ingeschakeld (Wake-on-LAN) en in een slaapstand worden geplaatst en heeft andere geavanceerde energiebeheerfuncties.

Binding

Binding is een methode voor het verbinden van twee of meer aardingsgeleiders met dezelfde elektrische potentiaal. Dit wordt gedaan door het gebruik van een ESD-buitendienstkit. Zorg er bij het aansluiten van een bindingsdraad voor dat deze is aangesloten op blank metaal en nooit op een geveerd of niet-metalen oppervlak. Zorg ervoor dat de polsband goed vastzit en volledig in contact is met uw huid. Verwijder alle sieraden, horloges, armbanden of ringen, voordat u uzelf en de apparatuur gaat aarden.

Bescherming tegen elektrostatische ontlading - Electrostatic discharge, ESD

ESD is een belangrijk aandachtspunt bij het werken met elektronische componenten, vooral gevoelige componenten, zoals uitbreidingskaarten, processoren, geheugenmodules en systeemkaarten. Geringe ladingen kunnen schade aan circuits veroorzaken op manieren die mogelijk niet vanzelfsprekend zijn, zoals onregelmatige problemen of een verkorte levensduur. Hoe meer de industrie lagere energievereisten en hogere dichtheid promoot, des te belangrijker wordt ESD-bescherming.

Twee erkende soorten ESD-schade zijn fatale en onregelmatige storingen.

- **Fataal:** Fatale storingen vertegenwoordigen ongeveer 20 procent van de aan ESD gerelateerde storingen. De schade veroorzaakt een onmiddellijk en volledig verlies van functionaliteit van het apparaat. Een voorbeeld van een fatale fout is een geheugenmodule die een statische schok heeft ontvangen en onmiddellijk een 'No POST/No Video'-symptoom genereert, waarbij een pieptoon wordt uitgezonden voor ontbrekend of niet-functioneel geheugen.
- **Onregelmatig** – Onregelmatige storingen vertegenwoordigen ongeveer 80 procent van de aan ESD gerelateerde storingen. De hoge frequentie van onregelmatige fouten betekent dat wanneer schade plaatsvindt, dit meestal niet onmiddellijk wordt herkend. De geheugenmodule ontvangt een statische schok, maar hierdoor wordt de tracing alleen verzwakt en worden geen onmiddellijk externe symptomen van de schade veroorzaakt. Het kan weken of maanden duren voordat de verzwakte tracing smelt. In de tussentijd kan dit leiden tot verslechtering van geheugenintegriteit, onregelmatige geheugenstoringen, enz.

Onregelmatige storingen, ook wel latente of sporadische optredende storingen genoemd, zijn moeilijk te detecteren en op te lossen.

Voer de volgende stappen uit om ESD-schade te voorkomen:

- Gebruik een bedrade ESD-polsband die goed is geaard. Draadloze antistatische banden bieden onvoldoende bescherming. Het aanraken van het chassis alvorens onderdelen te hanteren zorgt niet voor adequate bescherming tegen ESD op onderdelen met verhoogde gevoeligheid voor ESD-schade.
- Werk met alle elektrostatisch gevoelige onderdelen in een ruimte die vrij is van statische elektriciteit. Gebruik indien mogelijk antistatische vloer- en werkbankmatten.
- Wanneer u een voor statische elektriciteit gevoelig onderdeel uit de verzenddoos haalt, verwijdert u het onderdeel pas uit de antistatische verpakking op het moment dat u het gaat installeren. Voordat u de antistatische verpakking uitpakt, gebruikt u de antistatische polsband om de statische elektriciteit van uw lichaam te ontladen. Zie [Onderdelen van een ESD-buitendienstkit](#) voor meer informatie over de polsband en ESD-polsbandtester.
- Plaats een gevoelig onderdeel voor transport eerst in een antistatische doos of andere verpakking.

ESD-onderhoudskit

De ongecontroleerde buitendienstkit is de meest gebruikte servicekit. Elke Buitendienstkit bestaat uit drie hoofdcomponenten: antistatische mat, polsband en bindingsdraad.

 **WAARSCHUWING: Het is essentieel om ESD-gevoelige apparaten uit de buurt te houden van interne onderdelen die geïsoleerd zijn en vaak onder hoge spanning staan, zoals plastic behuizingen van koellichamen.**

Werkomgeving

Voordat u de ESD-buitendienstkit gebruikt, moet u eerst de situatie op de locatie van de klant evalueren. Het gebruik van de kit voor een serveromgeving is bijvoorbeeld anders dan voor een desktop- of laptopomgeving. Servers worden meestal geïnstalleerd in een rack binnen een datacenter; desktops of laptops worden meestal op bureaus of cubicles geplaatst. Zoek altijd naar een groot, open en vlak werkgebied dat vrij is van rommel en groot genoeg is om de ESD-kit te gebruiken met extra ruimte voor het type computer dat wordt gerepareerd. De werkruimte moet ook vrij zijn van isolatoren die een ESD-incident kunnen veroorzaken. Op het werkgebied moeten isolatoren zoals piepschuim en andere kunststoffen altijd op ten minste 12 inch of 30 centimeter afstand van gevoelige onderdelen worden verplaatst voordat fysiek met hardwareonderdelen wordt gewerkt.

ESD-verpakking

Alle ESD-gevoelige apparaten moeten worden verzonden en ontvangen in antistatische verpakking. Metalen tassen met antistatische afscherming hebben de voorkeur. U moet het beschadigde onderdeel echter altijd retourneren met dezelfde ESD-tas en -verpakking waarin het nieuwe onderdeel is aangekomen. De ESD-tas moet worden omgevouwen en dichtgetaped en al het schuimverpakkingsmateriaal moet worden gebruikt in de originele doos waarin het nieuwe onderdeel is aangekomen. ESD-gevoelige apparaten mogen alleen uit de verpakking worden verwijderd op een ESD-beschermde werkoppervlak en onderdelen mogen nooit bovenop de ESD-tas worden geplaatst, omdat alleen de binnenkant van de tas is afgeschermd. Plaats altijd onderdelen in uw hand, op de antistatische mat, in de computer of in een ESD-tas.

Onderdeel van een ESD-buitendienstkit

De onderdelen van de ESD-buitendienstkit zijn:

- **Antistatische mat:** de antistatische mat is dissipatief en er kunnen onderdelen op geplaatst worden tijdens onderhoudsprocedures. Wanneer u een antistatische mat gebruikt, moet uw polsband goed vastzitten en moet de bindingsdraad op de antistatische mat en op blank metaal op de computer waaraan wordt gewerkt, worden bevestigd. Eenmaal correct geplaatst, kunnen onderhoudsonderdelen uit de ESD-zak worden verwijderd en direct op de antistatische mat worden geplaatst. In uw hand, op de antistatische mat, in de computer of in een ESD-tas zijn de enige veilige plekken voor ESD-gevoelige items.
- **Polsband en bindingsdraad:** De polsband en de bindingsdraad kunnen rechtstreeks worden aangesloten tussen uw pols en het blanke metaal op de hardware als de antistatische mat niet nodig is. Ze kunnen ook op de antistatische mat worden bevestigd om hardware te beschermen die tijdelijk op de mat is geplaatst. De fysieke verbinding van de polsband en de bindingsdraad tussen uw huid, de antistatische mat en de hardware wordt binding genoemd. Gebruik alleen Buitendienstkits met een polsband, antistatische mat en bindingsdraad. Gebruik nooit draadloze polsbanden. Houd er altijd rekening mee dat de interne draden van een polsband gevoelig zijn voor beschadiging door normale slijtage en regelmatig moeten worden gecontroleerd met een polsbandtester om te voorkomen dat ESD-hardware per ongeluk wordt beschadigd. Het wordt aanbevolen om de polsband en de bindingsdraad minimaal één keer per week te testen.
- **ESD-polsbandtester:** de draden aan de binnenzijde van een ESD-polsband zijn vatbaar voor schade na verloop van tijd. Wanneer u een niet-gecontroleerde kit gebruikt, is het een best practice om de band regelmatig voorafgaand aan elke onderhoudsbeurt en ten minste één keer per week te testen. Deze test kan het beste met een polsbandtester worden uitgevoerd. Om de test uit te voeren, steekt u de bindingsdraad van de polsband in de tester terwijl deze om uw pols vastzit en drukt u op de knop om te testen. Een groen ledlampje gaat branden als de test succesvol is; een rode led gaat branden en een alarm gaat af als de test mislukt.

OPMERKING: Het wordt aangeraden om altijd de traditionele bekabelde ESD-aardingspolsband en beschermende antistatische mat te gebruiken bij het uitvoeren van onderhoudswerkzaamheden aan Dell producten. Bovendien is het van cruciaal belang dat gevoelige onderdelen gescheiden worden gehouden van alle isolatoronderdelen tijdens het onderhoud van de computer.

Gevoelige componenten transporteren

Bij het transport van ESD-gevoelige componenten, zoals vervangende onderdelen of onderdelen die moeten worden teruggestuurd naar Dell, is het van kritiek belang om deze onderdelen in antistatische tassen te plaatsen voor veilig transport.

Nadat u aan de computer hebt gewerkt

Over deze taak

WAARSCHUWING: Uw computer kan beschadigd raken als u er losse schroeven in achterlaat.

Stappen

1. Breng alle schroeven opnieuw aan en zorg ervoor dat er geen losse schroeven in uw computer achterblijven.
2. Sluit alle externe apparaten, randapparaten of kabels die u eerder had losgekoppeld, weer aan voordat u aan uw computer werkt.
3. Plaats alle mediakaarten, schijven of andere onderdelen die u had verwijderd, weer terug voordat u aan uw computer werkt.
4. Sluit uw computer aan op het stopcontact.

OPMERKING: Om de servicemodus af te sluiten, sluit u de voedingsadapter aan op de voedingsadapterpoort van uw computer.

5. Druk op de aan-uitknop om de computer in te schakelen.

BitLocker

WAARSCHUWING: Als BitLocker niet wordt onderbroken voordat het BIOS wordt bijgewerkt, wordt de BitLocker-sleutel niet herkend wanneer u de computer de volgende keer opnieuw opstart. U wordt vervolgens gevraagd om de herstelsleutel in te voeren om verder te gaan en het systeem zal bij elke herstart vragen om de herstelsleutel. Als de herstelsleutel niet bekend is, kan dit leiden tot dataverlies of een onnodige herinstallatie van het besturingssysteem. Lees het knowledge-artikel [BIOS bijwerken op Dell systemen met BitLocker ingeschakeld](#) voor meer informatie.

De installatie van de volgende componenten activeert BitLocker:

- Harde schijfstation of SSD
- Systeemkaart

Aanbevolen hulpmiddelen

Bij de procedures in dit document heeft u mogelijk de volgende hulpmiddelen nodig:

- Phillips screwdriver #0
- Phillips screwdriver #1
- Plastic scribe

Lijst van schroeven

OPMERKING: Bij het verwijderen van de schroeven van een component is het raadzaam om het schroeftype en de hoeveelheid schroeven te noteren en deze dan in de schroefopbergdoos te plaatsen. Dit is om ervoor te zorgen dat het juiste aantal schroeven en juiste schroeftype wordt gebruikt wanneer het component wordt teruggeplaatst.

OPMERKING: Sommige computers hebben magnetische oppervlakken. Zorg ervoor dat de schroeven niet vast blijven zitten aan zo'n oppervlak wanneer u een onderdeel terugplaatst.

OPMERKING: De schroefkleur kan verschillen afhankelijk van de bestelde configuratie.

Tabel 30. Screw list

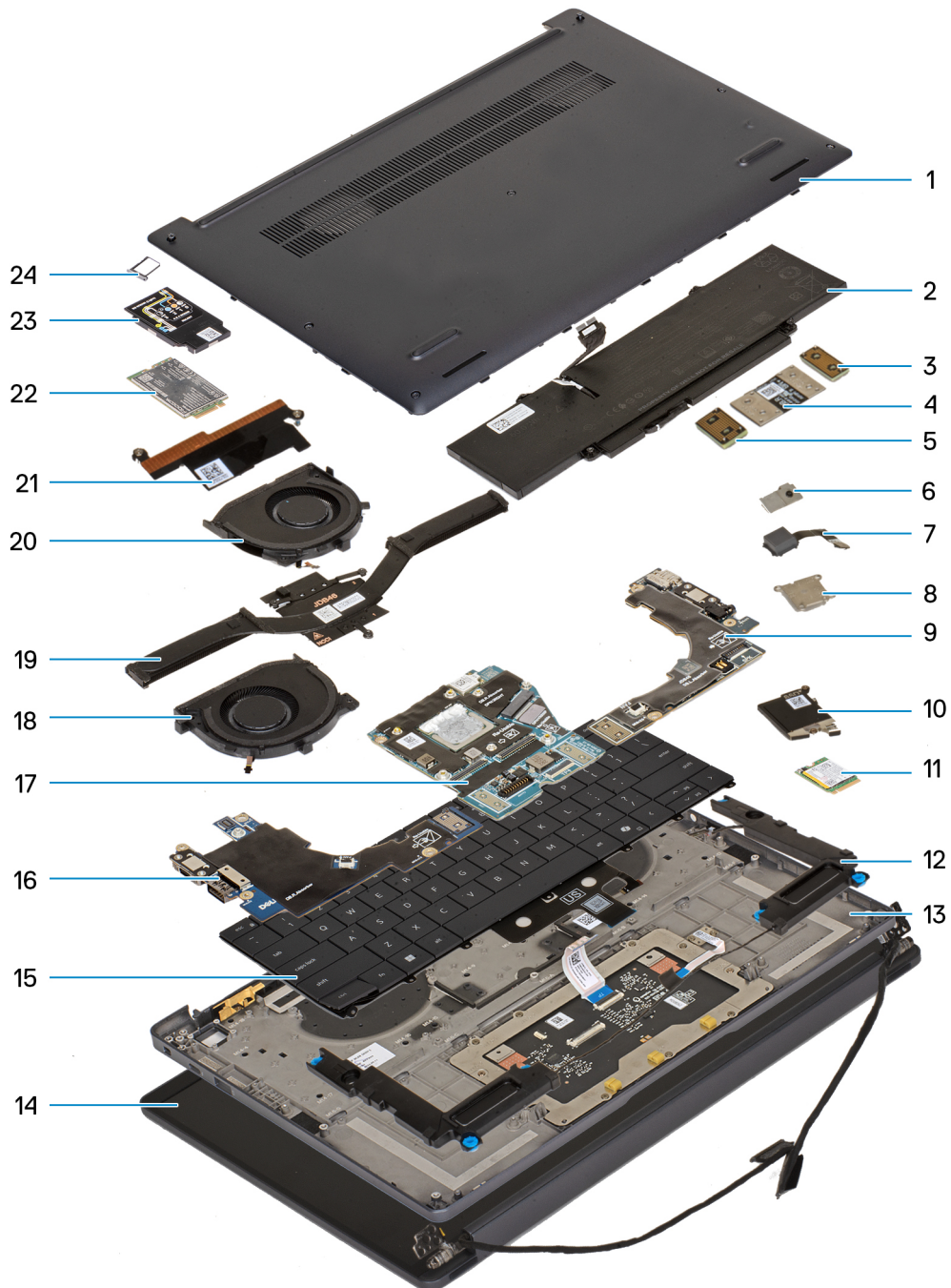
Component	Screw type	Quantity	Screw image
Base cover	M2.5x7 (Captive screw)	7	
Solid state drive (SSD) shield	M1.6x2 (Captive screw)	2	
WLAN bracket	M1.6x5.5 (Captive screw)	1	
Battery	M2x4.5 (Captive screw)	4	
WWAN-card bracket	M1.6x2.3 (Captive screw)	1	
Right fan	M1.6x3	2	
Left fan	M1.6x3	2	
Heat sink	M2x3.5 (Captive screw)	3	
Speaker	M2x2	6	
Left I/O-board	M1.6x5.5	4	 
	M1.6x2.5	3	
Right I/O-board	M1.6x5.5	4	 
	M1.6x2.5	4	

Tabel 30. Screw list (vervolg)

Component	Screw type	Quantity	Screw image
Left USB Type-C module	M2x5	2	
Right USB Type-C module	M2x5	2	
Power-button bracket	M1.6x2.3 (Captive screw)	1	
EDP-cable bracket	M1.6x5.5 (Captive screw)	2	
Display hinges	M2.5x5	6	
System board	M1.6x2.5	1	
Keyboard	M1.4x1.2	18	
	M1.6x2	7	

Belangrijkste componenten van de Dell Pro 14 Premium PA14250

De volgende afbeelding toont de belangrijkste componenten van de Dell Pro 14 Premium PA14250.



Afbeelding 9. Major Components of your system/exploded view

1. Base cover
2. Battery
3. Interposer board
4. I/O-board FPC
5. Interposer board
6. Power button
7. Fingerprint reader
8. Power-button bracket
9. Right I/O-board
10. Solid state drive (SSD) shield
11. Solid state drive (SSD)

12. Speakers
13. Palm-rest assembly
14. Display assembly
15. Keyboard
16. Left I/O-board
17. System board
18. Right fan
19. Heat sink
20. Left fan
21. EDP-cable bracket
22. WWAN card
23. WWAN-card shield
24. nano-SIM card tray

 **OPMERKING:** 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.

CRU's (door de klant zelf te vervangen onderdelen) verwijderen en installeren

De vervangbare onderdelen in dit hoofdstuk zijn CRU's (door de klant zelf te vervangen onderdelen)

 **WAARSCHUWING:** Klanten kunnen alleen de CRU's (Customer Replaceable Units) vervangen volgens de veiligheidsmaatregelen en vervangingsprocedures.

 **OPMERKING:** De afbeeldingen in dit document kunnen verschillen van uw computer; dit is afhankelijk van de configuratie die u hebt besteld.

nano-SIM card tray

Removing the nano-SIM card tray

Vereisten

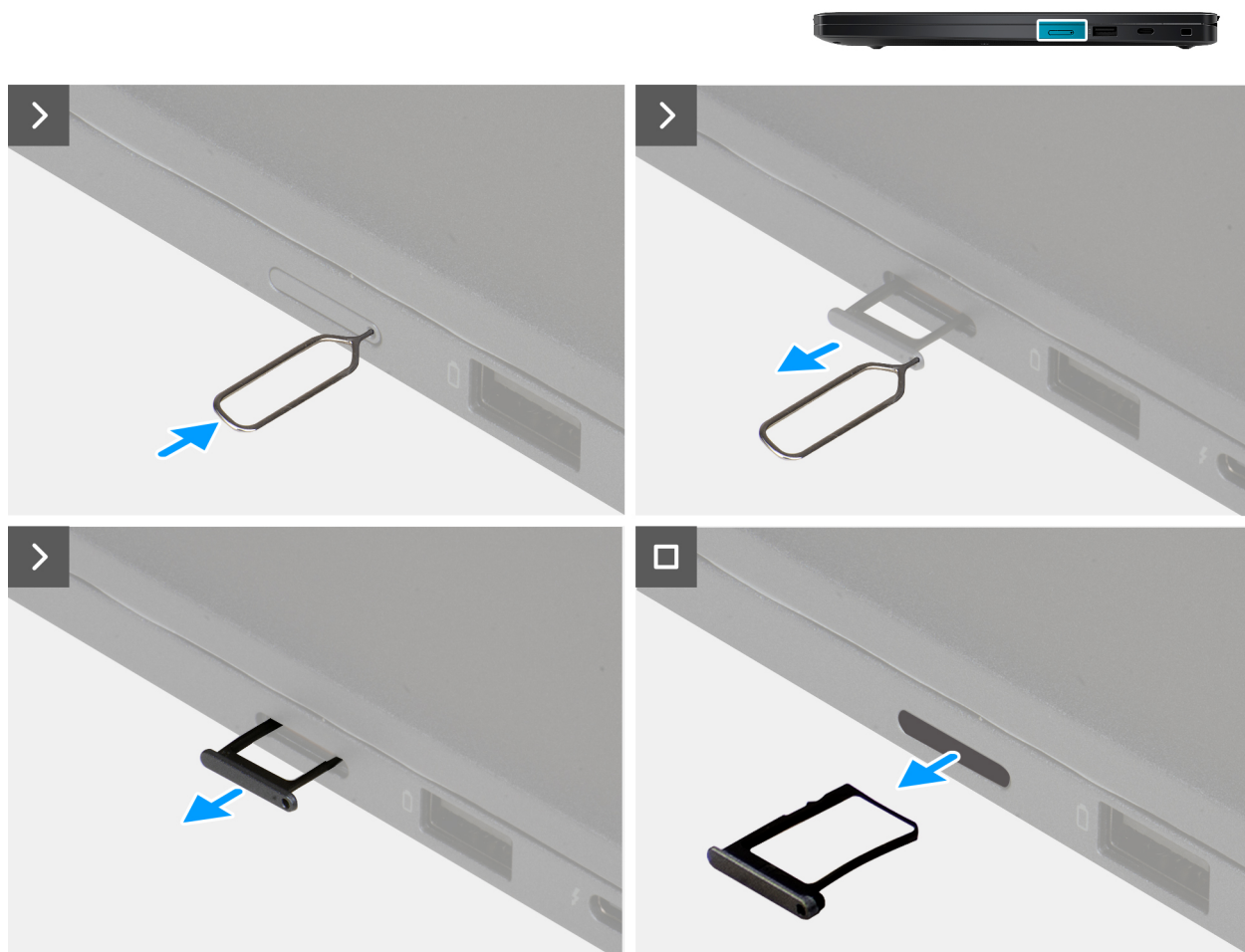
1. Follow the procedure in [Before working inside your computer](#).

 **OPMERKING:** Ensure that your computer is in Service Mode. For more information, see [Before working inside your computer](#).

Over deze taak

 **OPMERKING:** This procedure applies only to computers shipped with a nano-SIM card tray installed. No pre-removals for models shipped without WWAN antennas.

The following images indicate the location of the nano-SIM card tray and provide a visual representation of the removal procedure.



Afbeelding 10. Removing the nano-SIM card tray

Stappen

1. Insert a pin into the release hole of the nano-SIM card tray and push inward until the tray is released.
2. Push the SIM-ejector pin to disengage the lock, and eject the nano-SIM card tray.
3. Slide the nano-SIM card tray out of the slot on the computer.

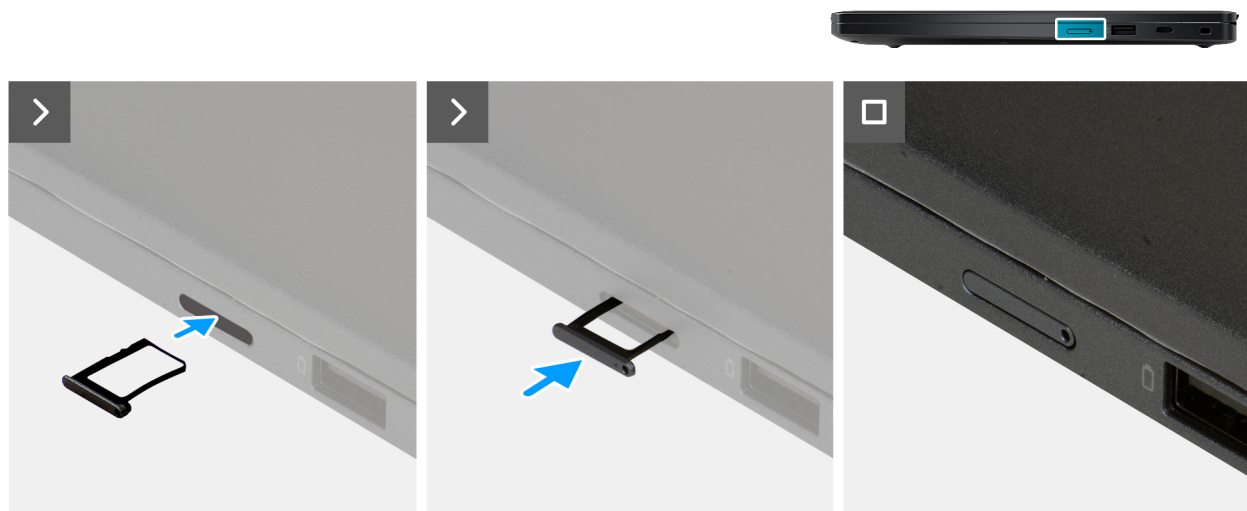
Installing the nano-SIM card tray

Vereisten

Als u een onderdeel vervangt, dient u het bestaande onderdeel te verwijderen alvorens de installatieprocedure uit te voeren.

Over deze taak

The following images indicate the location of the nano-SIM card tray and provide a visual representation of the installation procedure.



Afbeelding 11. Installing the nano-SIM card tray

Stappen

Align the nano-SIM card tray with the slot on the computer and carefully slide it in.

Vervolgstappen

1. Follow the procedure in [After working inside your computer.](#)

nano-SIM card

Removing the nano-SIM card

Vereisten

1. Follow the procedure in [Before working inside your computer.](#)

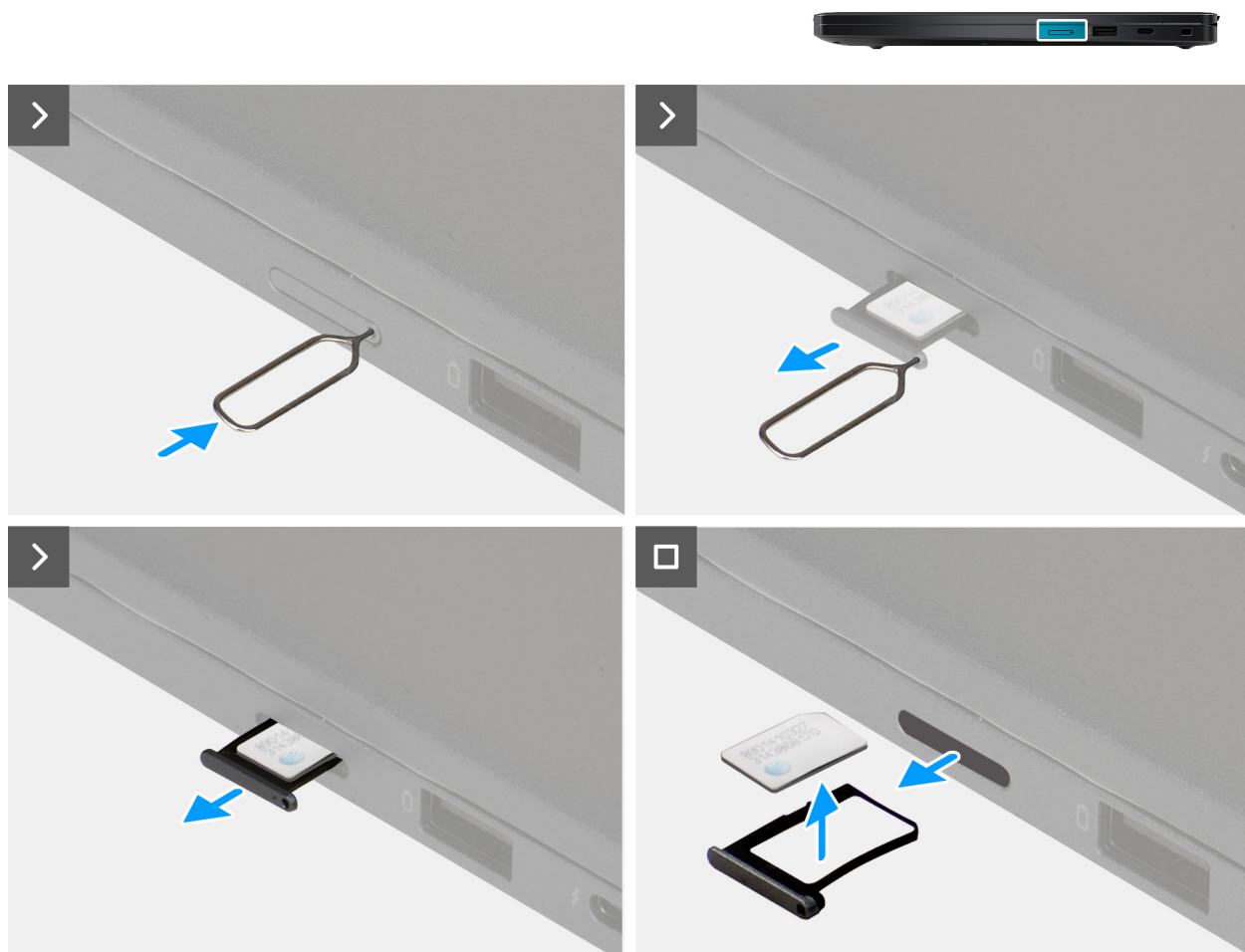
OPMERKING: Ensure that your computer is in Service Mode. For more information, see [Before working inside your computer.](#)

2. Remove the [nano-SIM card tray.](#)

WAARSCHUWING: Removing the nano-SIM card when the computer is turned on can cause data loss or damage the card. Ensure that your computer is turned off or the network connections are disabled.

Over deze taak

The following images indicate the location of the nano-SIM card and provide a visual representation of the removal procedure.



Afbeelding 12. Removing the nano-SIM card

Stappen

1. Insert a SIM-ejector pin into the release hole to release the nano-SIM card tray.
2. Push the SIM-ejector pin to disengage the lock, and eject the nano-SIM card tray.
3. Slide the nano-SIM card tray out of the slot on the computer.
4. Remove the nano-SIM card from the nano-SIM card tray.

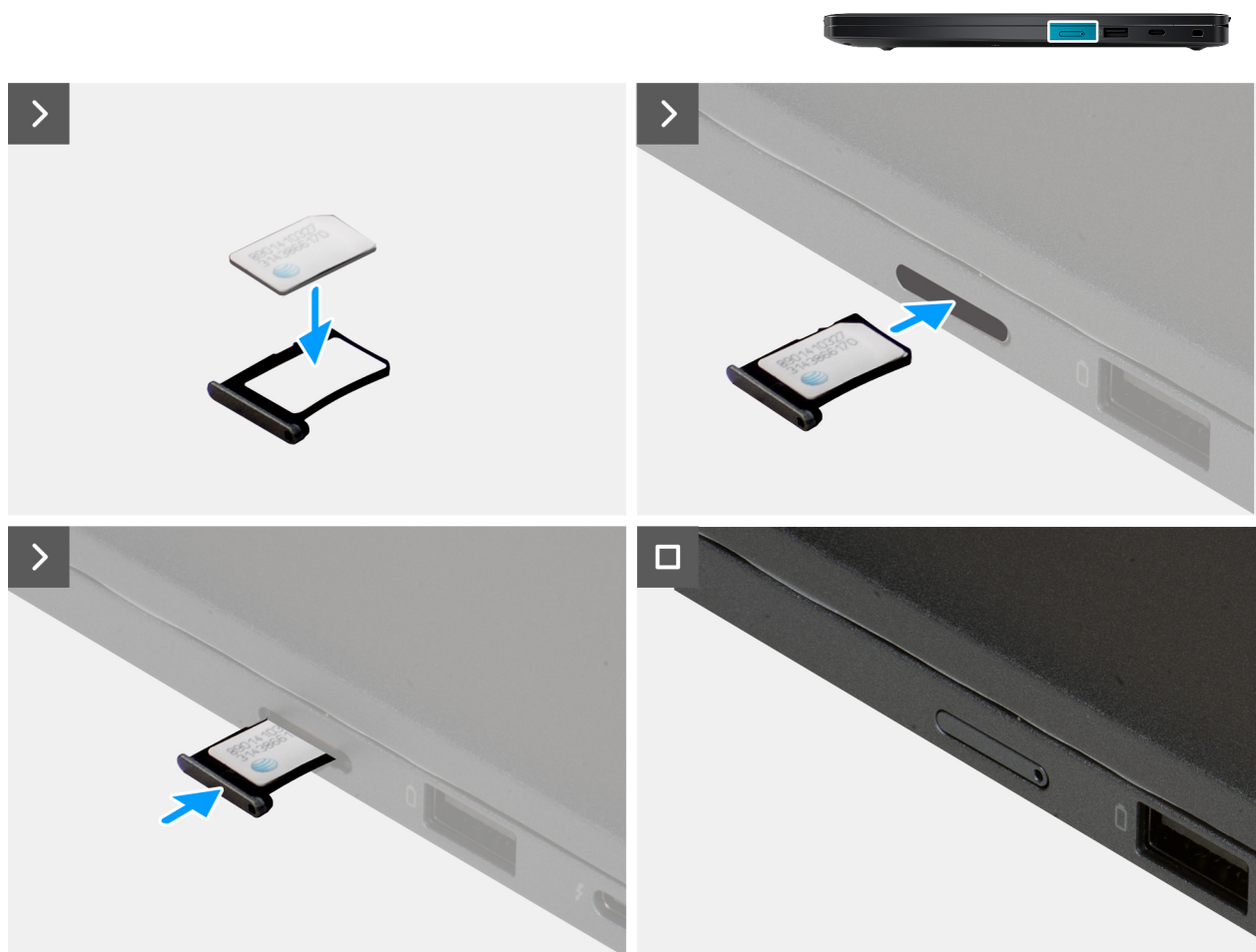
Installing the nano-SIM card

Vereisten

If you are replacing a component, remove the existing component before performing the installation procedure.

Over deze taak

The following images indicate the location of the nano-SIM card and provide a visual representation of the installation procedure.



Afbeelding 13. Installing the nano-SIM card

Stappen

1. Align and place the nano-SIM card into the nano-SIM card tray with the metallic contact facing up.
2. Align the nano-SIM card tray with the slot on the computer and carefully slide it in.

Vervolgstappen

1. Install the [nano-SIM card tray](#).
2. Follow the procedure in [After working inside your computer](#).

Onderplaat

Removing the base cover

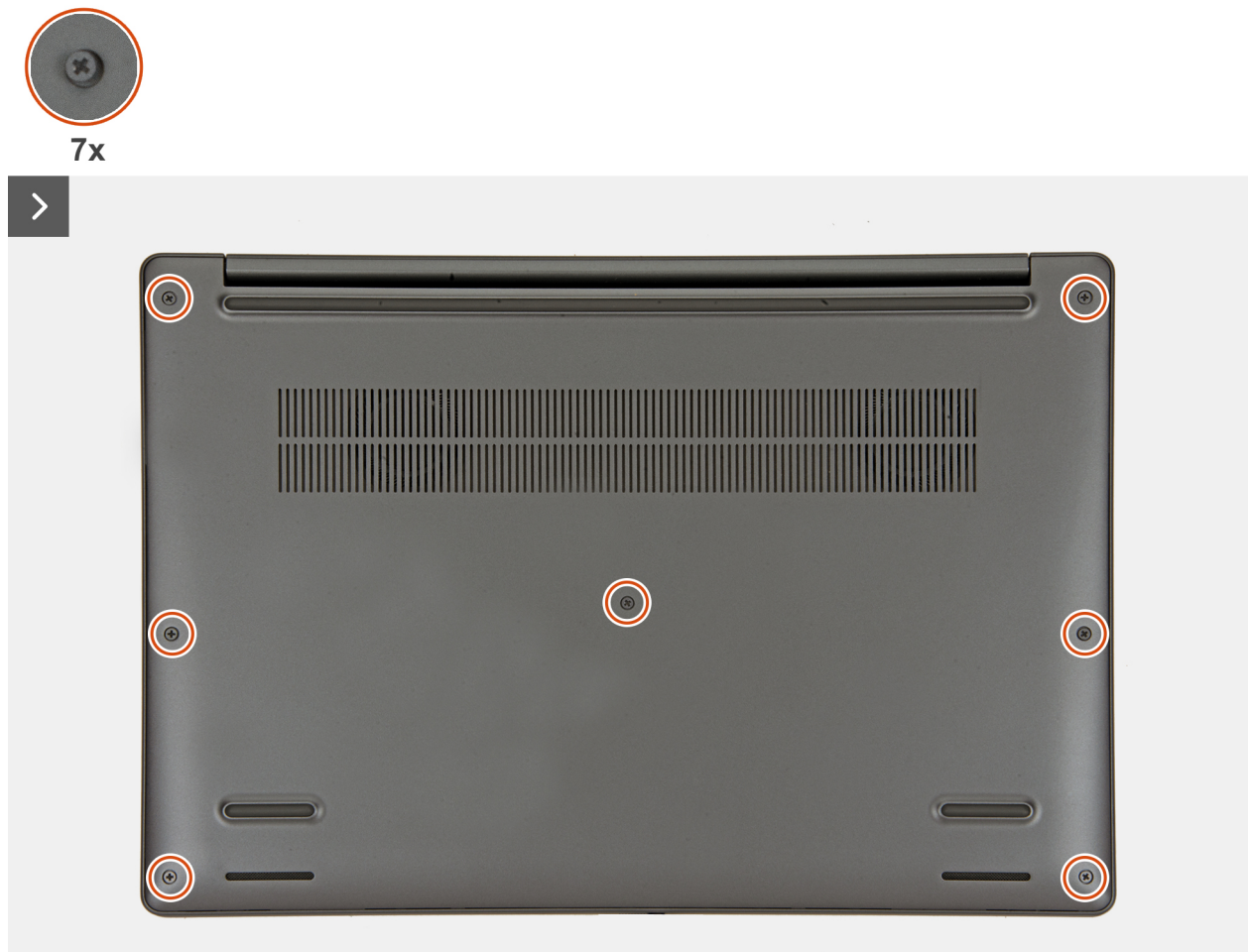
Vereisten

1. Follow the procedure in [Before working inside your computer](#).

OPMERKING: Ensure that your computer is in Service Mode. For more information, see [Before working inside your computer](#).

Over deze taak

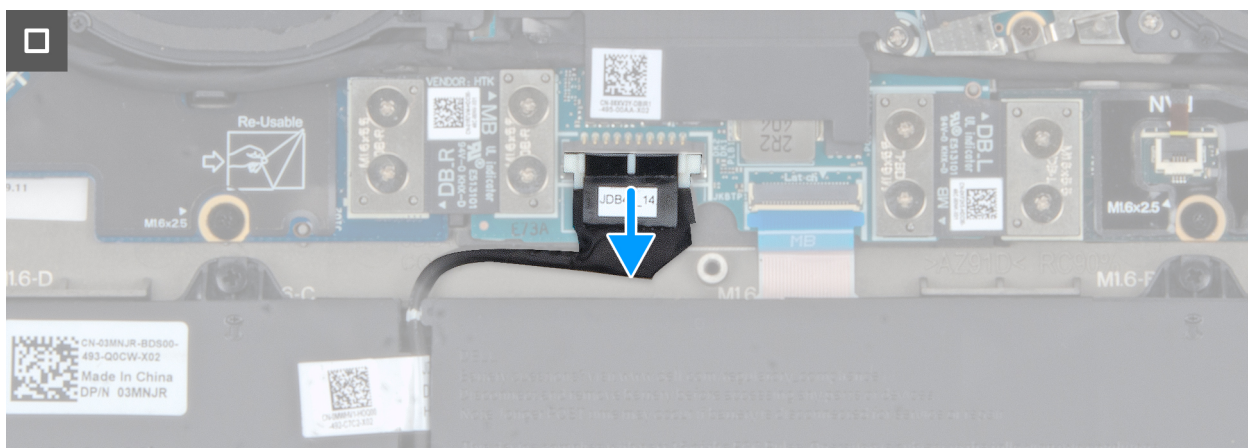
The following images indicate the location of the base cover and provide a visual representation of the removal procedure.



Afbeelding 14. Loosen the captive screws



Afbeelding 15. Removing the base cover



Afbeelding 16. Disconnect the battery cable from the system board

Stappen

1. Loosen the seven captive screws that secure the base cover to the palm-rest and keyboard assembly.
2. Using a plastic scribe, pry open the base cover starting from the recesses, which are located in the U-shaped indents at the top edge of the base cover, near the hinges.

WAARSCHUWING: Do not slide the scribe through the edge of the top side of the base cover as it damages the latches inside the base cover.

WAARSCHUWING: Do not pry upwards from the edge near the vents, at the top side of the base cover, as it damages the base cover.

3. Pry open the top side of the base cover and continue working on the left, right and, bottom sides to open the base cover.
4. Lift the base cover from the left and right sides and remove the base cover off the palm-rest and keyboard assembly.
5. Disconnect the battery cable from the system board.

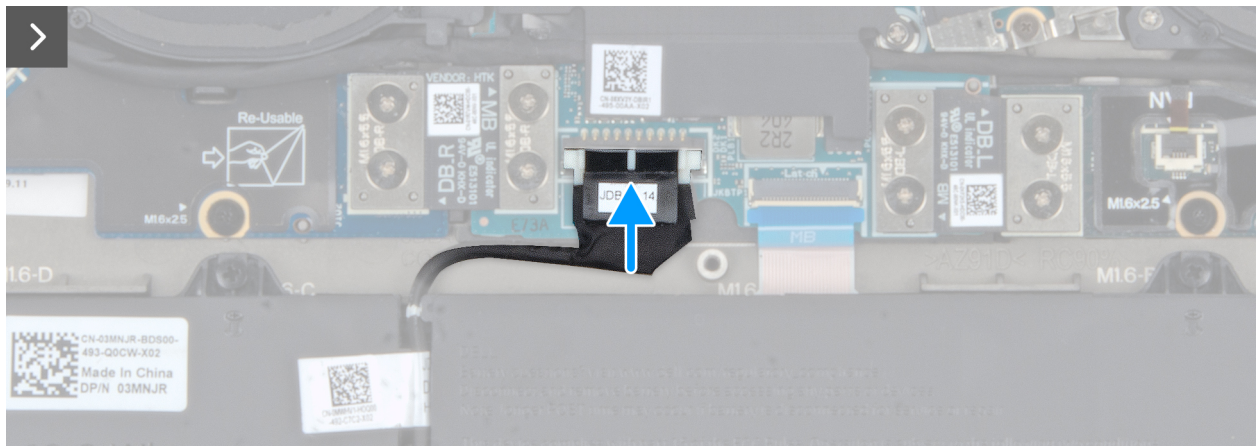
Installing the base cover

Vereisten

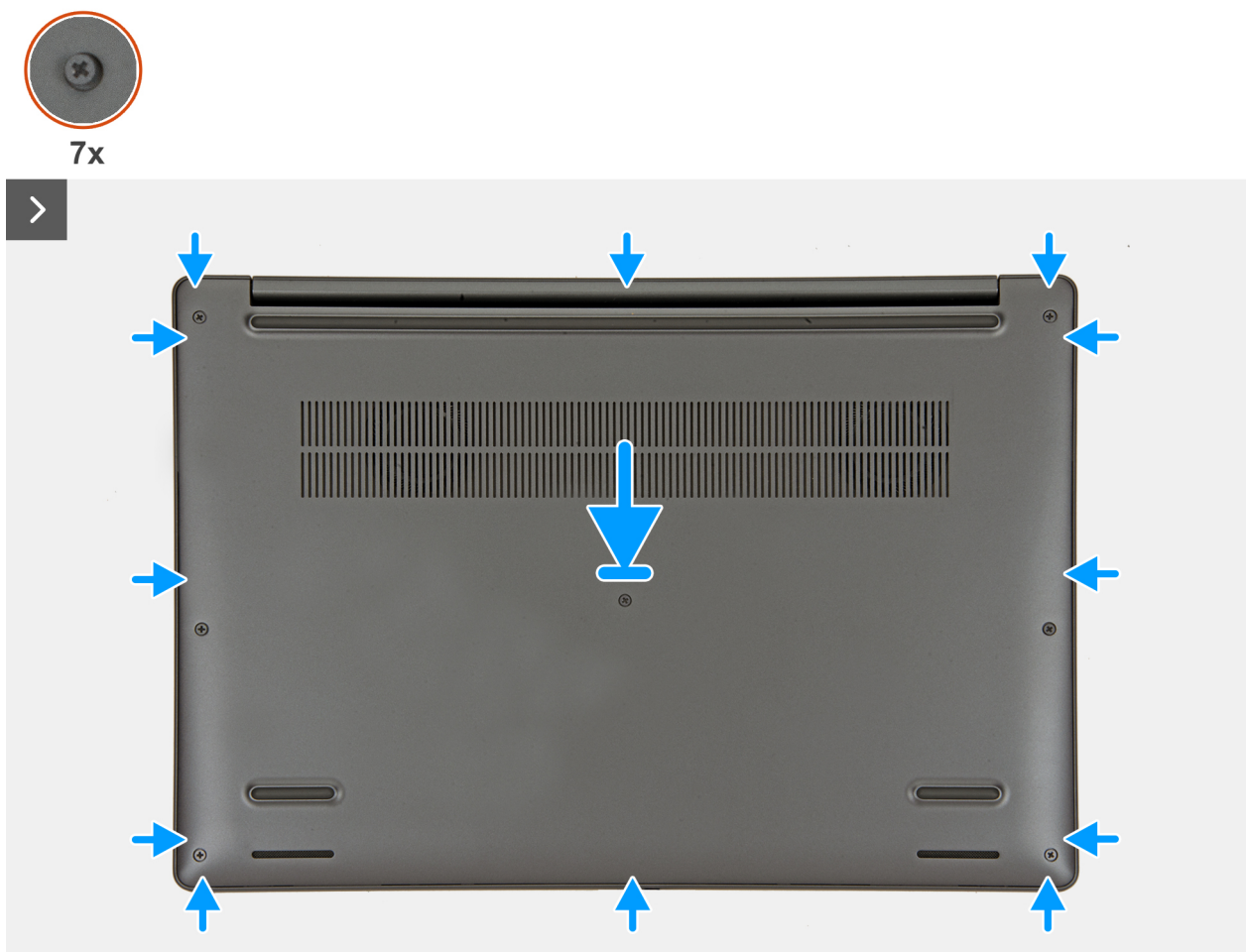
If you are replacing a component, remove the existing component before performing the installation procedure.

Over deze taak

The following images indicate the location of the base cover and provide a visual representation of the installation procedure.



Afbeelding 17. Connect the battery cable to the system board



Afbeelding 18. Installing the base cover



Afbeelding 19. Tighten the captive screws

Stappen

1. Connect the battery cable to the battery-cable connector on the system board.
2. Place the base cover on top of the palm-rest and keyboard assembly.
3. Align the screw holes on the base cover with the screw holes on the palm-rest and keyboard assembly, and snap the base cover into place.
4. Tighten the seven captive screws to secure the base cover to the palm-rest and keyboard assembly.

Vervolgstappen

1. Follow the procedure in [After working inside your computer](#).

Batterij

Voorzorgsmaatregelen oplaadbare lithium-ionbatterij

⚠ WAARSCHUWING:

- Wees voorzichtig bij het omgaan met oplaadbare lithium-ionbatterijen.
- Ontlaad de batterij volledig voordat u deze verwijdert. Koppel de netvoedingsadapter los van de computer en gebruik de computer uitsluitend op batterijstroom: de batterij is volledig ontladen als de computer niet meer wordt ingeschakeld wanneer de aan-uitknop wordt ingedrukt.
- U moet de batterij niet pletten, laten vallen, beschadigen of doorboren met vreemde voorwerpen.
- Stel de batterij niet bloot aan hoge temperaturen en haal batterijpacks cellen niet uit elkaar.
- Oefen geen druk uit op het oppervlak van de batterij.
- Buig de batterij niet.
- Gebruik geen gereedschap om te wrikken op of langs de batterij.

- Zorg ervoor dat tijdens het onderhoud van dit product geen schroeven verloren gaan of verkeerd worden geplaatst om te voorkomen dat de batterij en andere onderdelen per ongeluk worden doorboord of beschadigd.
- Als de batterij vast komt te zitten in de computer als resultaat van zwellen, moet u niet proberen deze los te maken omdat het doorboren, buigen of pletten van een oplaadbare lithium-ionbatterij gevaarlijk kan zijn. Neem in een dergelijk geval contact op met de technische support van Dell voor hulp. Zie [Contact opnemen met de ondersteuning op de website van Dell Support](#).
- Schaf altijd originele batterijen via de [website van Dell](#) of geautoriseerde Dell partners en verkopers aan.
- Opgezwollen batterijen dienen niet gebruikt te worden en dienen te worden vervangen en op juiste wijze weg te worden gegooid. Zie [Afhandeling van opgezette oplaadbare lithium-ionbatterijen](#) voor richtlijnen voor het omgaan met en vervangen van opgezette oplaadbare lithium-ionbatterijen.

Removing the battery

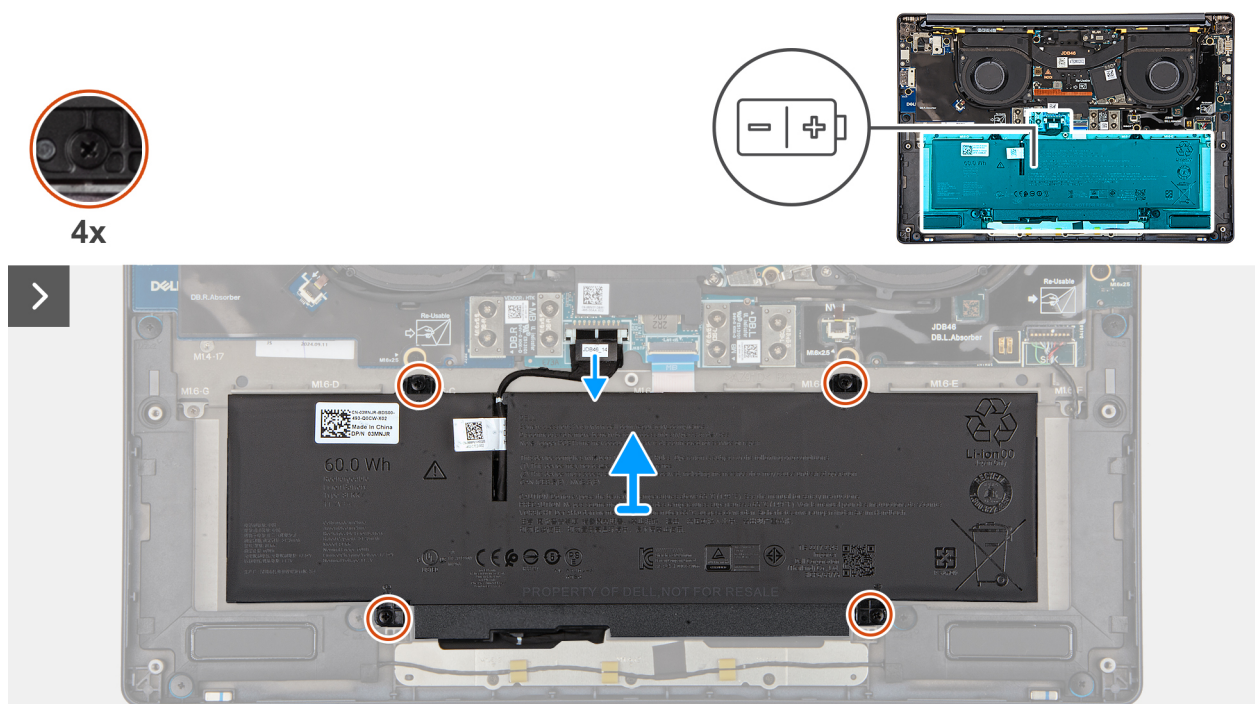
Vereisten

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

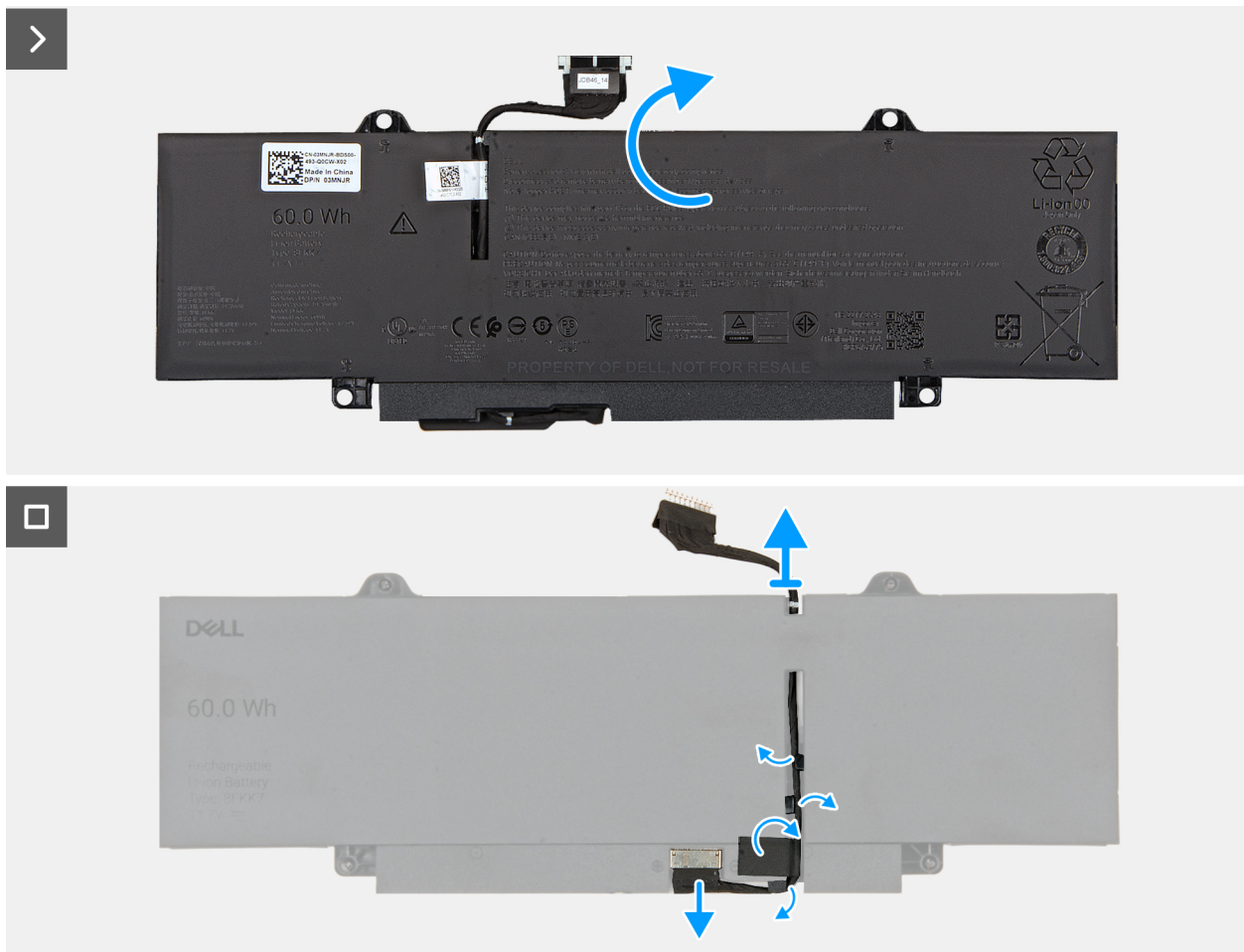
Over deze taak

WAARSCHUWING: Removing the battery resets the BIOS setup settings to default. It is recommended that you note the BIOS setup settings before removing the battery.

The following images indicate the location of the battery and provide a visual representation of the removal procedure.



Afbeelding 20. Loosen the captive screws



Afbeelding 21. Removing the battery and disconnecting the battery cable

Stappen

1. Disconnect the battery cable from the battery-cable connector on the system board (if not disconnected earlier).
2. Loosen the four captive screws that secure the battery to the palm-rest assembly.
3. Lift the battery off the palm-rest assembly.
4. Flip the battery and peel the tape that adheres the battery cable to the battery.
5. Remove the battery cable from the routing guides on the battery.
6. Disconnect the battery cable from the connector on the battery.
7. Remove the battery cable away from the battery.

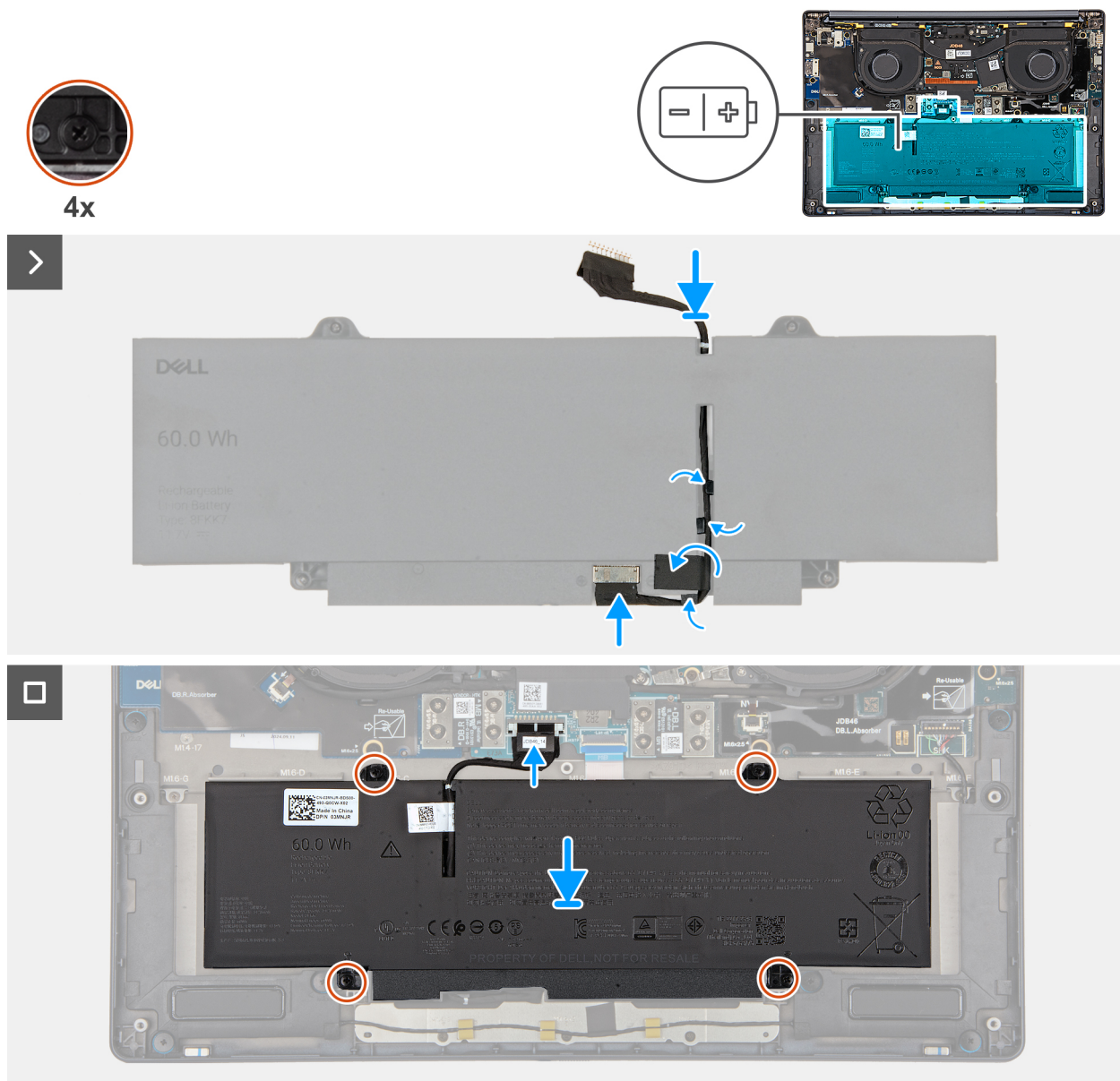
Installing the battery

Vereisten

If you are replacing a component, remove the existing component before performing the installation procedure.

Over deze taak

The following images indicate the location of the battery and provide a visual representation of the installation procedure.



Afbeelding 22. Installing the battery

Stappen

1. Align and route the battery cable through the routing guides on the battery.
2. Adhere the tape that secures the battery cable to the battery.
3. Connect the battery cable to the connector on the battery.
4. Flip the battery.
5. Using the alignment posts, place the battery on the palm-rest assembly.
6. Align the screw holes on the battery with the screw holes on the palm-rest assembly.
7. Tighten the four captive screws that secure the battery to the palm-rest assembly.
8. Connect the battery cable to the battery-cable connector on the system board.

Vervolgstappen

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Solid State-schijf (SSD)

Removing the M.2 2230 solid state drive

Vereisten

1. Follow the procedure in [Before working inside your computer](#).

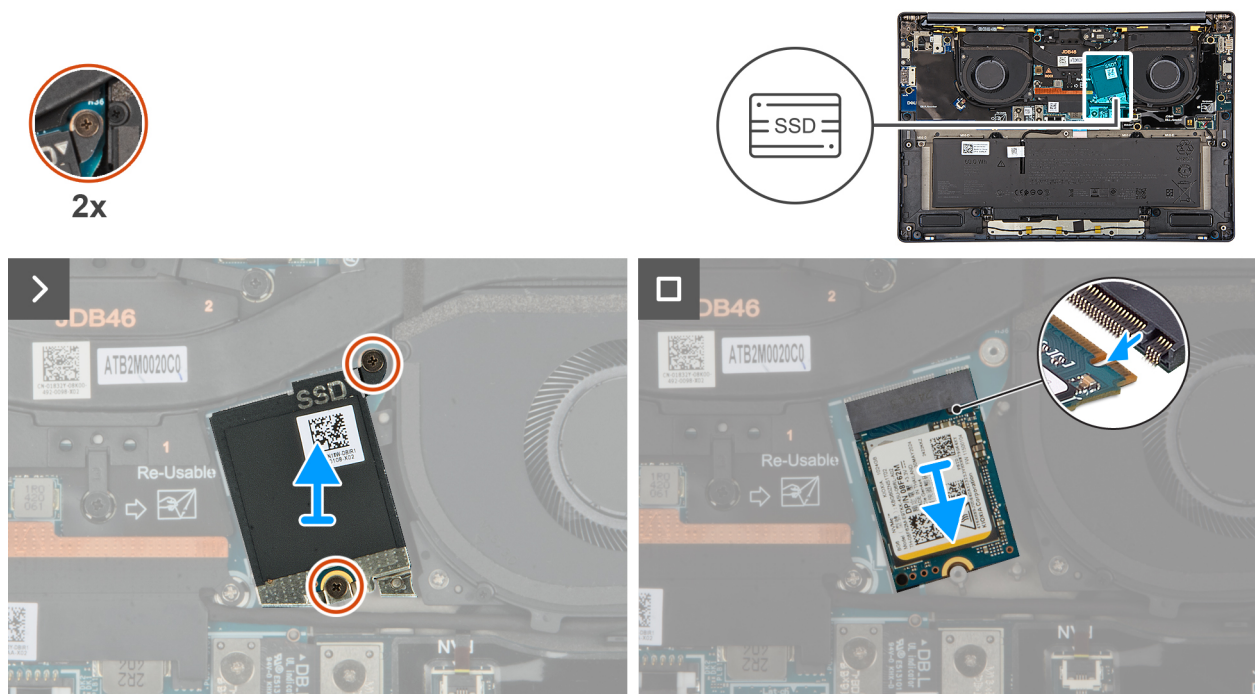
OPMERKING: Solid state drives are fragile. Exercise care when handling the solid state drive.

OPMERKING: To avoid data loss, do not remove the solid state drive while the computer is in sleep or on state.

2. Remove the [base cover](#).

Over deze taak

The following image indicates the location of the M.2 2230 SSD and provides a visual representation of the removal procedure.



Afbeelding 23. Removing the SSD

Stappen

1. Loosen the two captive screws that secure the SSD shield cover from the system board.
2. Remove the SSD shield cover from the computer.
3. Slide and remove the SSD from the SSD slot on the system board.

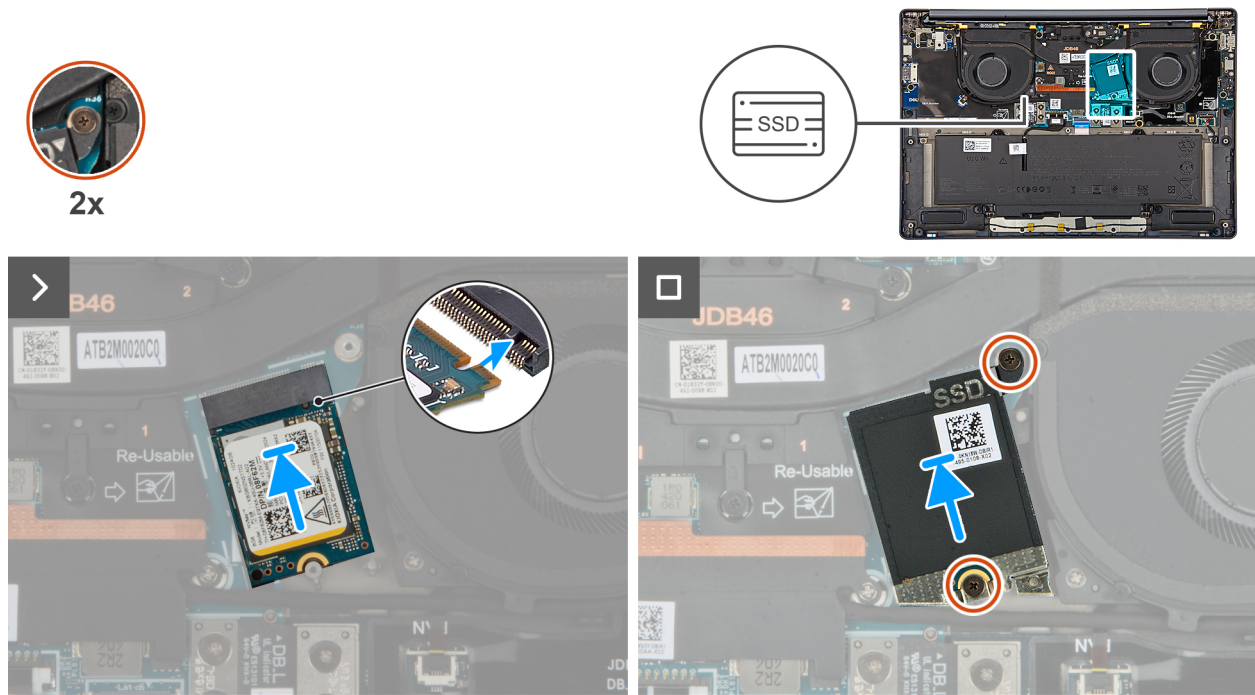
Installing the M.2 2230 solid state drive

Vereisten

Als u een onderdeel vervangt, dient u het bestaande onderdeel te verwijderen alvorens de installatieprocedure uit te voeren.

Over deze taak

The following image indicates the location of the M.2 2230 solid state drive (SSD) and provides a visual representation of the installation procedure.



Afbeelding 24. Installing the SSD

Stappen

1. Align the notch on the SSD with the tab on the SSD slot on the system board.
2. Replace the two captive screws to secure the SSD shield cover to the system board.

Vervolgstappen

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).
3. Verify if the storage device is installed correctly:
 - a. Turn on or restart your system.
 - b. Press F2 when the Dell logo is displayed on the screen to enter the system setup (BIOS) program.

 **OPMERKING:** A list of storage devices are displayed under the **System Information** in the **General** group.

- c. If you have replaced the primary storage device that had the operating system that is installed, search in the Knowledge Base Resource at [Dell Support Site](#).

WWAN-kaart (Wireless Wide Area Network)

Removing the WWAN card

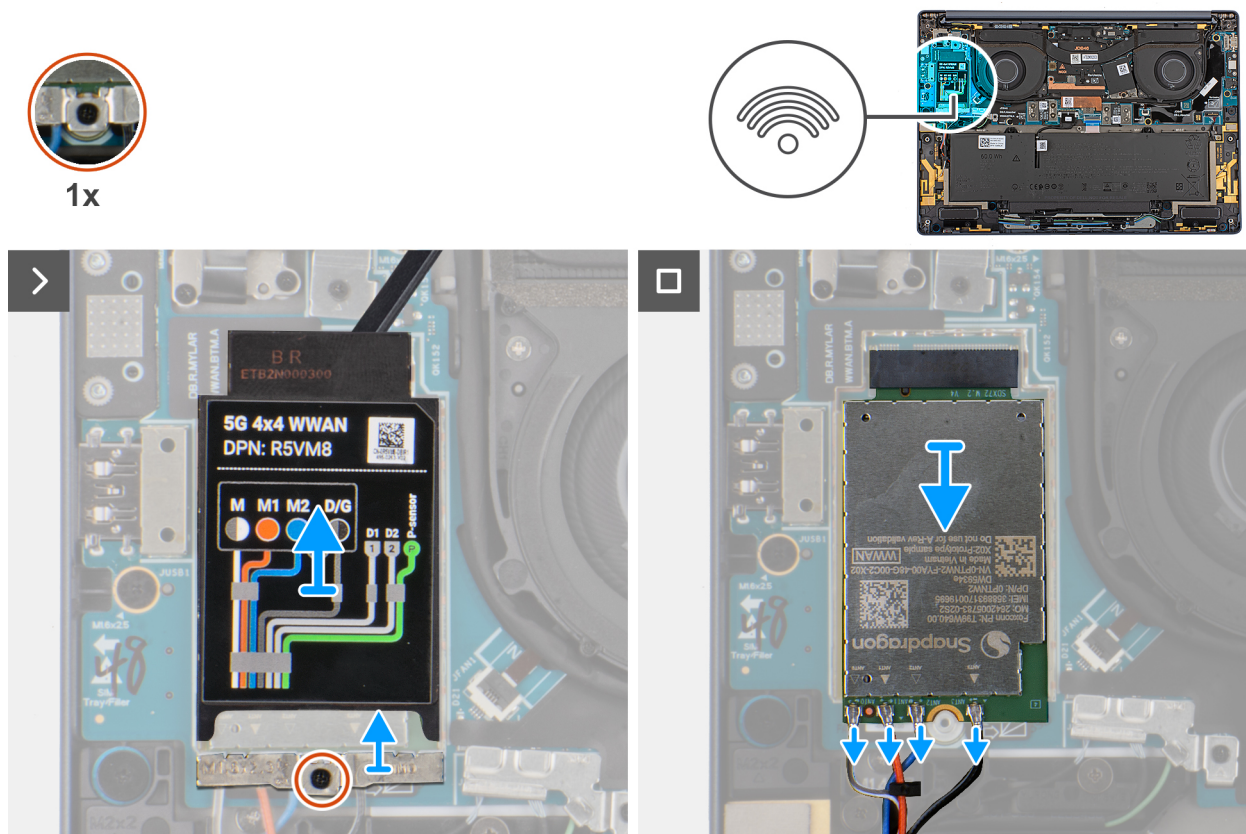
Vereisten

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM card tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).

Over deze taak

- OPMERKING:** This procedure applies only to computers shipped with a WWAN card installed.
- OPMERKING:** When reinstalling the WWAN card shield cover, ensure that the shielding cover is inserted into the clips on the right I/O-board.

The following images indicate the location of the WWAN card and provide a visual representation of the removal procedure.



Afbeelding 25. Removing the WWAN card

Stappen

1. Pry the WWAN shield cover from the top-left side of the shielding cover and remove it from the computer.
2. Lift the WWAN shield cover off the right I/O-board.
3. Loosen the single captive screw that secures the WWAN-card bracket to the right I/O-board.
4. Remove the WWAN-card bracket from the computer.
5. Disconnect the antenna cables from the connectors on the WWAN card.
6. Slide and remove the WWAN card from the WWAN card slot on the right I/O-board.

Installing the WWAN card

Vereisten

Als u een onderdeel vervangt, dient u het bestaande onderdeel te verwijderen alvorens de installatieprocedure uit te voeren.

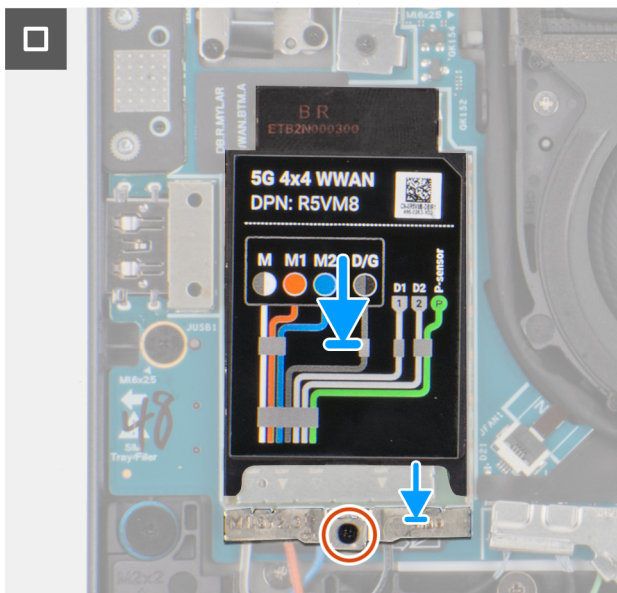
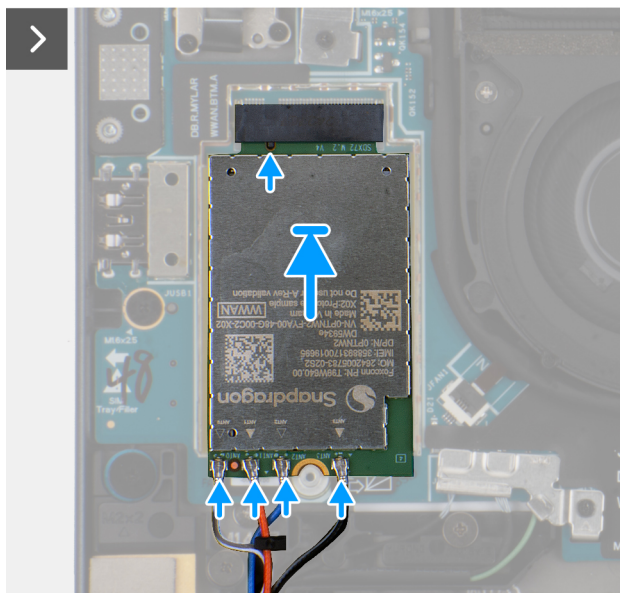
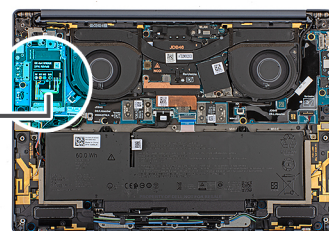
- OPMERKING:** When reinstalling the WWAN card shielding cover, ensure that the shielding cover is inserted into the clips on the right I/O-.

Over deze taak

The following images indicate the location of the WWAN card and provide a visual representation of the installation procedure.



1x



Afbeelding 26. Installing the WWAN card

Stappen

1. Align the notch on the WWAN card with the tab on the WWAN card slot on the system board.
2. Slide the WWAN card firmly into the WWAN card slot on the system board.
3. Connect the antenna cables to the connectors on the WWAN card.

The following table provides the antenna-cable color scheme for the WWAN card that is supported on your computer.

Tabel 31. Antenna-cable color scheme for WWAN cards

Connectors on the WWAN card	Antenna-cable color	Silkscreen marking	
D/G	Black with a thin white stripe	ANT3 D/G	△ (white triangle)
M2	Blue	ANT2 M2	△ (white triangle)
M1	Orange	ANT1 M1	△ (white triangle)
M	White with a thin gray stripe	ANT0 M	△ (white triangle)

4. Place the WWAN-card bracket on the WWAN card.
5. Align the screw on the WWAN-card bracket with the screw hole on the system board.
6. Replace the captive screw that secures the WWAN-card bracket to the system board.
7. Place the WWAN shielding cover over the WWAN card and secure it in place.

OPMERKING: For instructions on how to find your computer's International Mobile Station Equipment Identity (IMEI) number, search in the Knowledge Base Resource at [Dell Support Site](#).

Vervolgstappen

1. Install the [base cover](#).

2. Install the [nano-SIM card](#).
3. Install the [nano-SIM card tray](#).
4. Follow the procedure in [After working inside your computer](#).

Ventilator

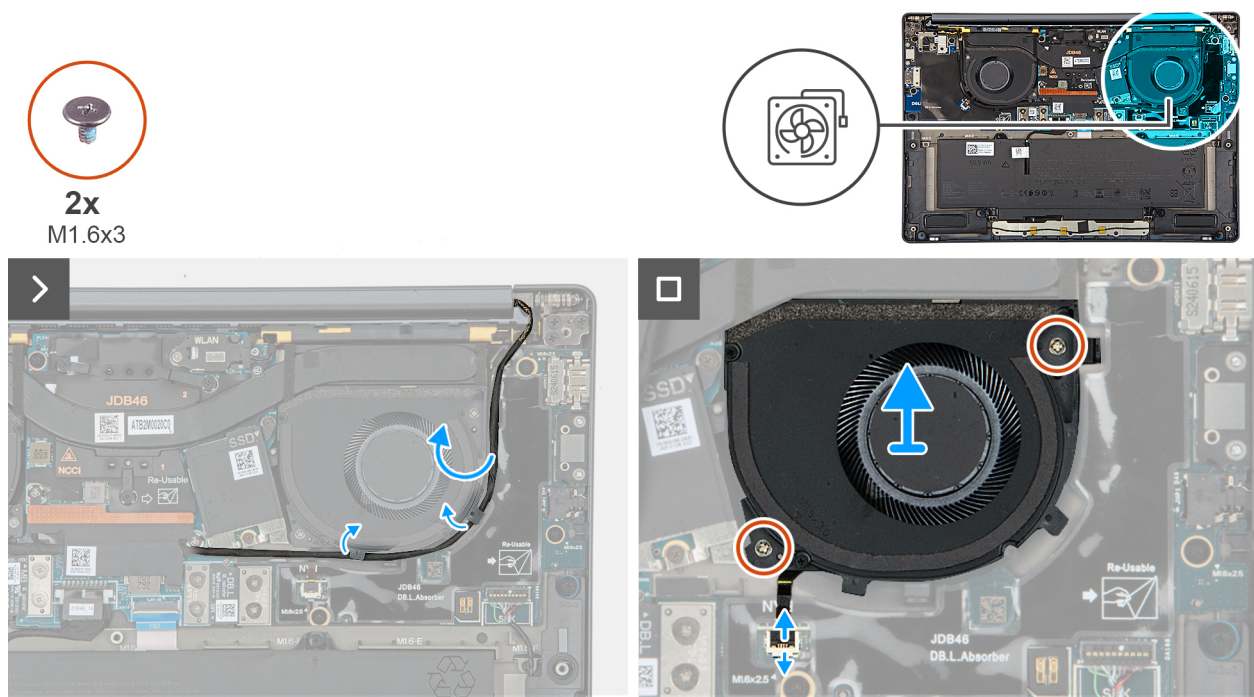
Removing the left fan

Vereisten

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

Over deze taak

The following image indicates the location of the left fan and provides a visual representation of the removal procedure.



Afbeelding 27. Removing the left fan

Stappen

1. Unroute the camera cable from the routing channels along the sides of the left fan.
2. Disconnect the left-fan cable from the connector on the left I/O-board.
3. Remove the two screws (M1.6x3) that secure the left fan.
4. Remove the left fan from the palm-rest assembly.

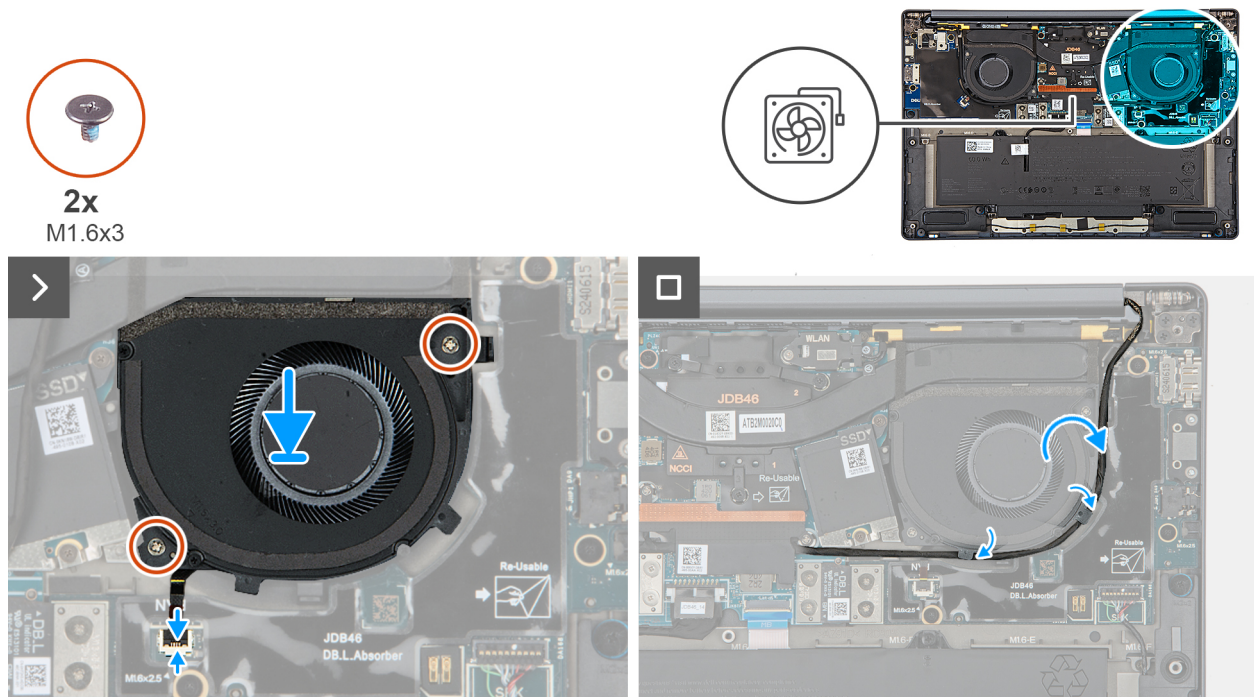
Installing the left fan

Vereisten

Als u een onderdeel vervangt, dient u het bestaande onderdeel te verwijderen alvorens de installatieprocedure uit te voeren.

Over deze taak

The following image indicates the location of the left fan and provides a visual representation of the installation procedure.



Afbeelding 28. Installing the left fan

Stappen

1. Place the left fan on the palm-rest assembly.
2. Align the screw holes on the left fan to the screw holes on the palm-rest assembly.
3. Replace the two screws (M1.6x3) that secure the left fan to the palm-rest assembly.
4. Connect the left fan cable to the connector on the left I/O-board.

Vervolgstappen

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Removing the right fan

Vereisten

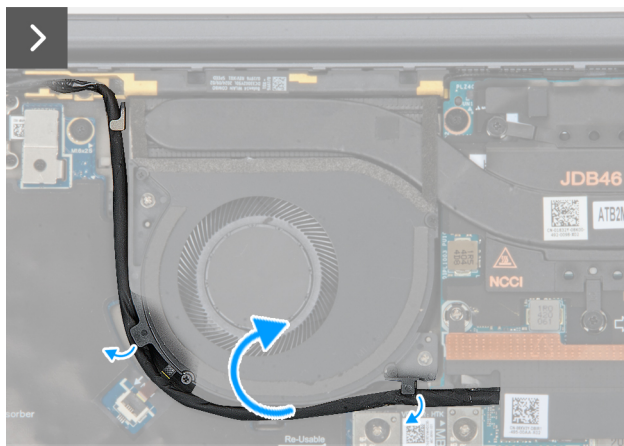
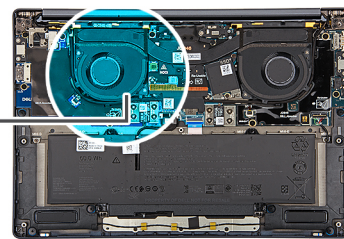
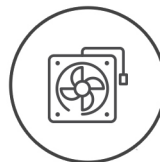
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

Over deze taak

The following image indicates the location of the right fan and provides a visual representation of the removal procedure.



2x
M1.6x3



Afbeelding 29. Removing the right fan

Stappen

1. Unroute the camera cable from the routing channels along the sides of the right fan.
2. Disconnect the right-fan cable from the connector on the right I/O-board.
3. Remove the two screws (M1.6x3) that secure the right fan.
4. Remove the right fan from the palm-rest assembly.

Installing the right fan

Vereisten

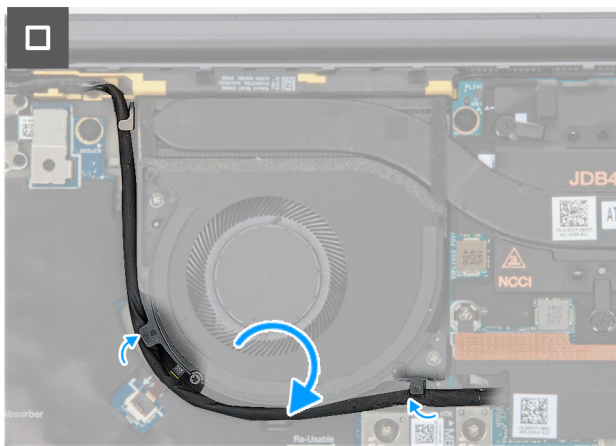
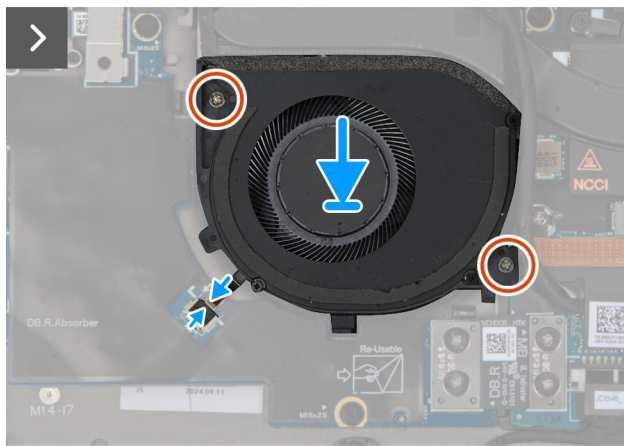
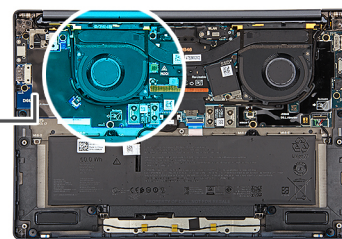
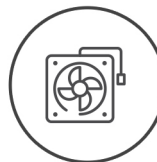
Als u een onderdeel vervangt, dient u het bestaande onderdeel te verwijderen alvorens de installatieprocedure uit te voeren.

Over deze taak

The following image indicates the location of the right fan and provides a visual representation of the installation procedure.



2x
M1.6x3



Afbeelding 30. Installing the right fan

Stappen

1. Place the right fan on the palm-rest assembly.
2. Align the screw holes on the right fan to the screw holes on the palm-rest assembly.
3. Replace the two screws (M1.6x3) that secure the right fan to the palm-rest assembly.
4. Connect the right-fan cable to the connector on the right I/O-board.

Vervolgstappen

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Luidsprekers

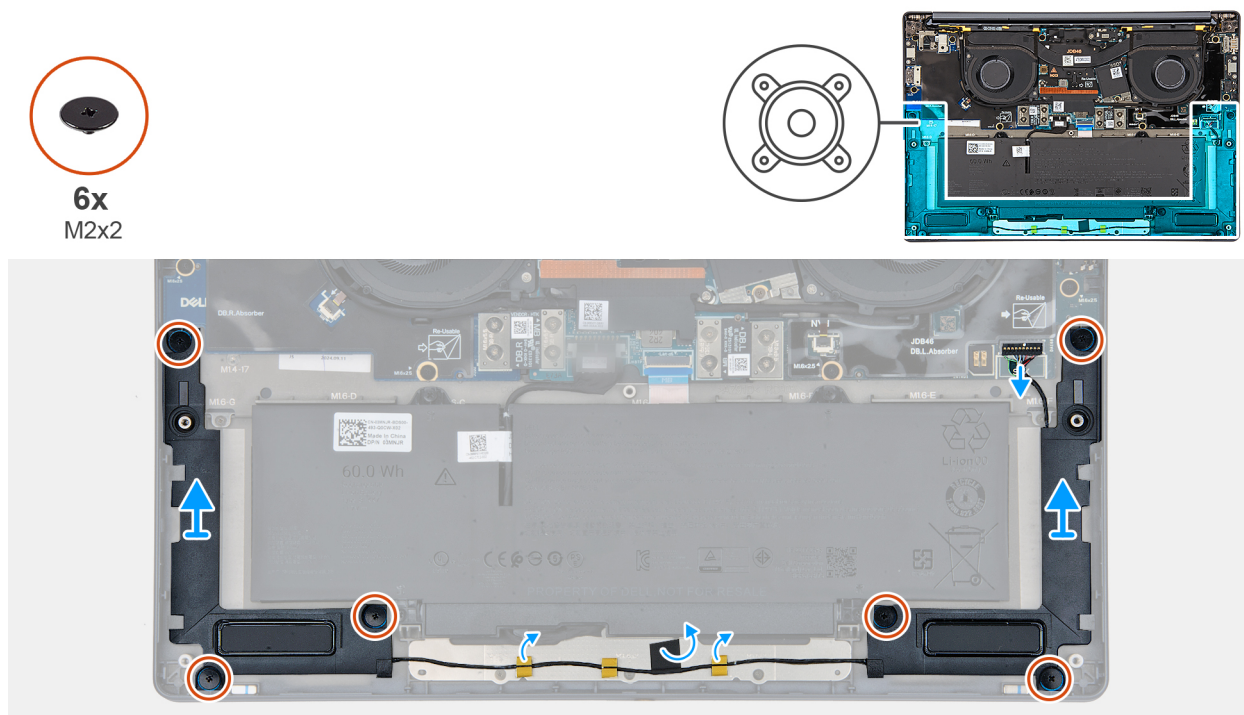
Removing the speakers without antenna (WLAN configuration)

Vereisten

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

Over deze taak

The following image indicates the location of the speakers and provides a visual representation of the removal procedure.



Afbeelding 31. Removing the speakers without antenna (WLAN configuration)

Stappen

1. Disconnect the speaker cable from the connector on the left I/O-board.
2. Remove the six screws (M2x2) that secure the speakers in place.
3. Peel the tape that secures the speaker cable to the palm-rest and keyboard assembly.
4. Note the speaker cable routing, and unroute the speaker cable from the routing guides on the palm-rest and keyboard assembly.
5. Lift the speakers, along with the cable, off the palm-rest and keyboard assembly.

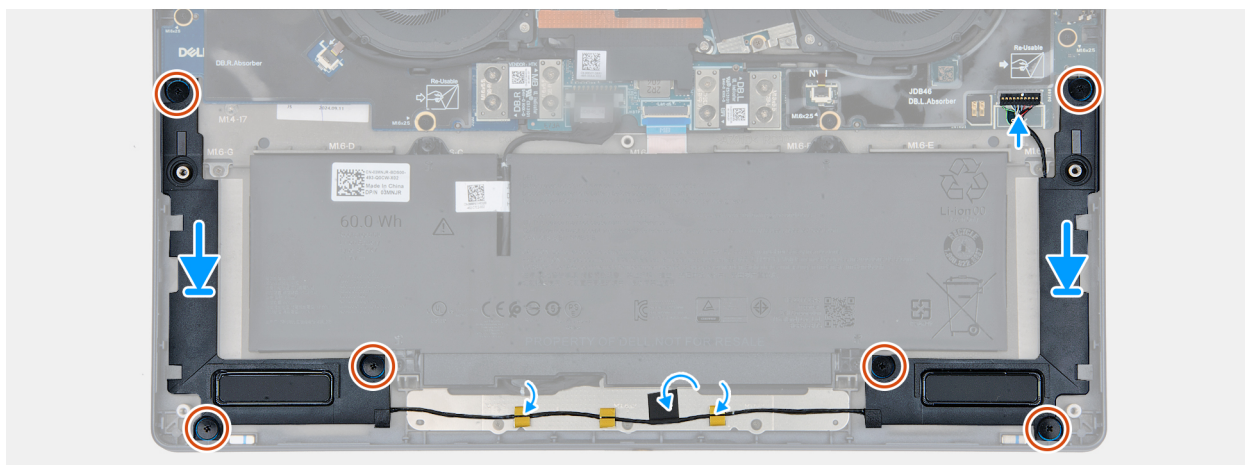
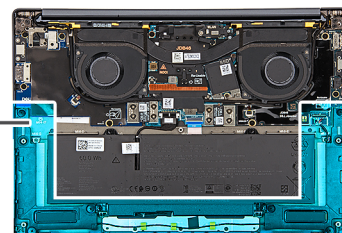
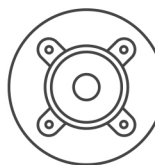
Installing the speakers without antenna (WLAN configuration)

Vereisten

Als u een onderdeel vervangt, dient u het bestaande onderdeel te verwijderen alvorens de installatieprocedure uit te voeren.

Over deze taak

The following image indicates the location of the speakers and provides a visual representation of the installation procedure.



Afbeelding 32. Installing the speakers (without WWAN)

Stappen

1. Using the alignment posts and rubber grommets, place the speakers into the slots on the palm-rest and keyboard assembly.
OPMERKING: To properly position the speakers, secure the rubber grommets into the hooks.
2. Route the speaker cable along the bottom side of the palm-rest and keyboard assembly. Then secure the speaker cable into the routing guides on the palm-rest and keyboard assembly.
3. Replace the six screws (M2x2) that secures the speakers in place.
4. Adhere the tape that secures the speaker cable to the palm-rest and keyboard assembly.
5. Connect the speaker cable to the connector on the left I/O-board.

Vervolgstappen

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

FRU's (op locatie te vervangen onderdelen) verwijderen en installeren

De vervangbare onderdelen in dit hoofdstuk zijn FRU's (op locatie te vervangen onderdelen)

 **WAARSCHUWING:** De informatie in deze sectie is alleen bedoeld voor geautoriseerde servicetechnici.

 **WAARSCHUWING:** Om mogelijke schade aan het component of verlies van data te voorkomen, moet u ervoor zorgen dat een geautoriseerde servicetechnicus de FRU's (Field Replaceable Units) vervangt.

 **WAARSCHUWING:** Dell Technologies raadt u aan om deze reeks reparaties, indien nodig, uit te laten voeren door getrainde technische reparatiespecialisten.

 **WAARSCHUWING:** Ter herinnering: uw garantie dekt geen schade die kan optreden tijdens FRU-reparaties die niet door Dell Technologies zijn geautoriseerd.

 **OPMERKING:** De afbeeldingen in dit document kunnen verschillen van uw computer; dit is afhankelijk van de configuratie die u hebt besteld.

Luidsprekers

Removing the speakers with antennas (WWAN configuration)

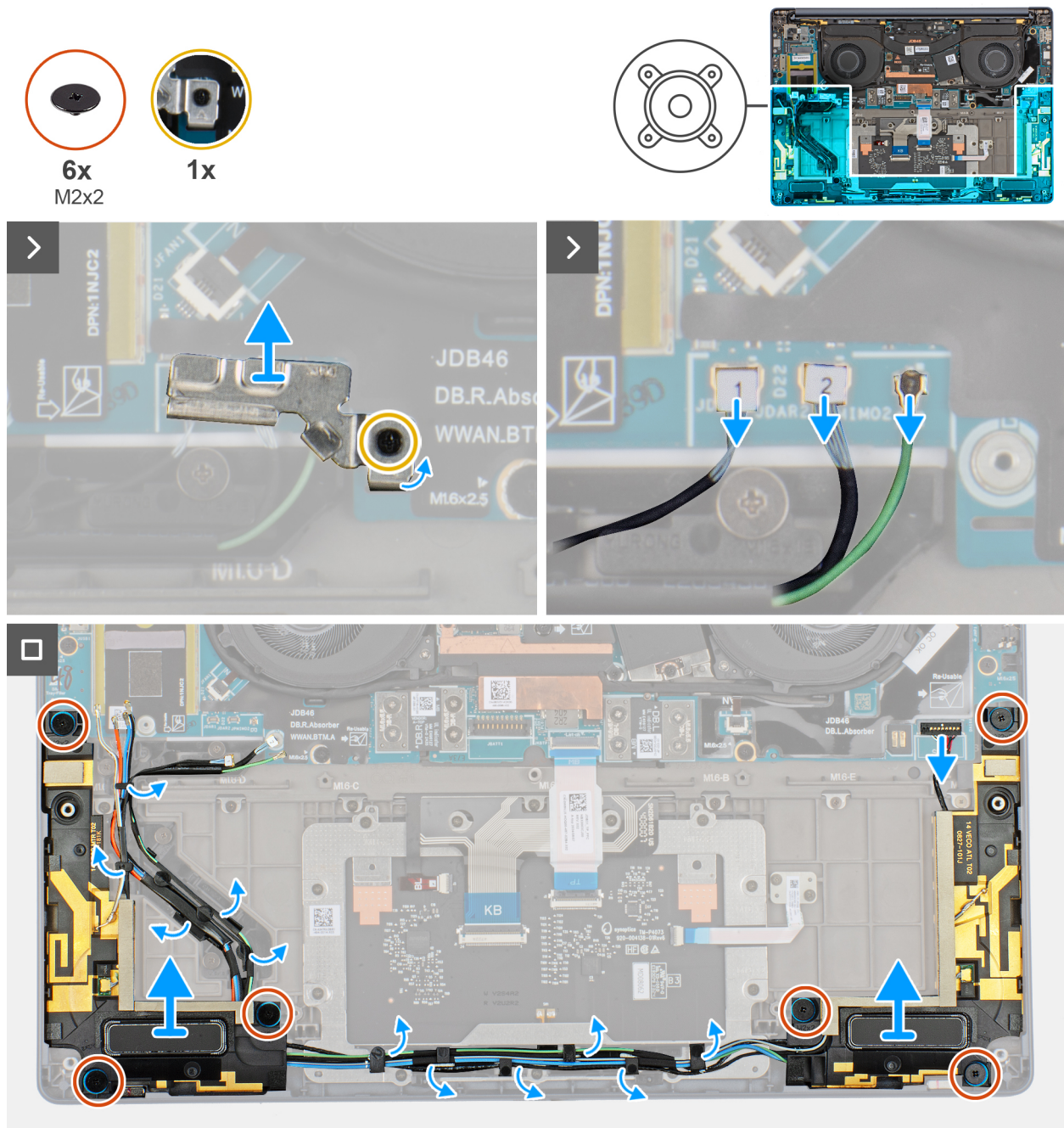
 **WAARSCHUWING:** The information in this section is intended for authorized service technicians only.

Vereisten

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM card tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).
5. Remove the [WWAN card](#).

Over deze taak

The following image indicates the location of the speakers and provides a visual representation of the removal procedure.



Afbeelding 33. Removing the speakers with antennas (WWAN configuration)

Stappen

1. Loosen the captive screw that secures the antenna cables to the WWAN-card bracket.
2. Disconnect and unroute the antenna cables from the routing guide.
3. Disconnect the speaker cable from the connector on the left I/O-board.
4. Remove the six screws (M2x2) that secure the speakers in place.
5. Peel the tape that secures the speaker cable to the palm-rest and keyboard assembly.
6. Note the speaker cable routing, and unroute the speaker cable from the routing guides on the palm-rest and keyboard assembly.
7. Lift the speakers, along with the cable, off the palm-rest and keyboard assembly.

Installing the speakers with antennas (WWAN configuration)

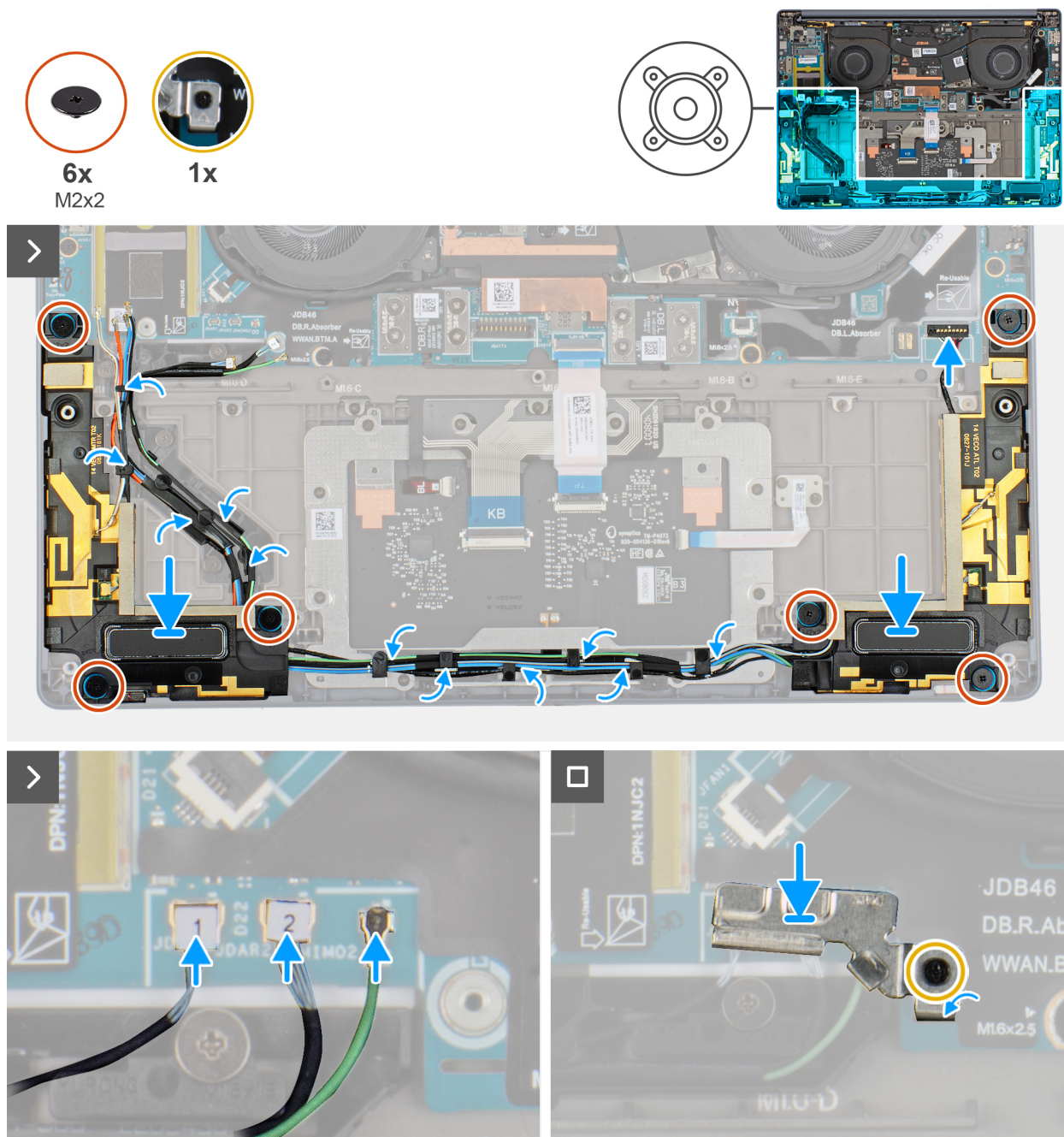
WAARSCHUWING: The information in this section is intended for authorized service technicians only.

Vereisten

Als u een onderdeel vervangt, dient u het bestaande onderdeel te verwijderen alvorens de installatieprocedure uit te voeren.

Over deze taak

The following image indicates the location of the speakers and provides a visual representation of the installation procedure.



Abbeelding 34. Installing the speakers with antennas (WWAN configuration)

Stappen

1. Using the alignment posts and rubber grommets, place the speakers into the slots on the palm-rest and keyboard assembly.
 **OPMERKING:** To properly position the speakers, secure the rubber grommets into the hooks.
2. Route the speaker cable along the bottom side of the palm-rest and keyboard assembly. Then secure the speaker cable into the routing guides on the palm-rest and keyboard assembly.
3. Replace the six screws (M2x2) that secures the speakers in place.
4. Adhere the tape that secures the speaker cable to the palm-rest and keyboard assembly.
5. Connect the speaker cable to the connector on the left I/O-board.
6. Connect the antenna cables and replace the WWAN-card bracket.
7. Tighten the captive screw that secures the antenna cables to the WWAN-card bracket.

Vervolgstappen

1. Install the [WWAN card](#).
2. Install the [base cover](#).
3. Install the [nano-SIM card](#).
4. Install the [nano-SIM card tray](#).
5. Follow the procedure in [After working inside your computer](#).

Koelplaat

Removing the heat sink

 **WAARSCHUWING:** The information in this section is intended for authorized service technicians only.

Vereisten

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

Over deze taak

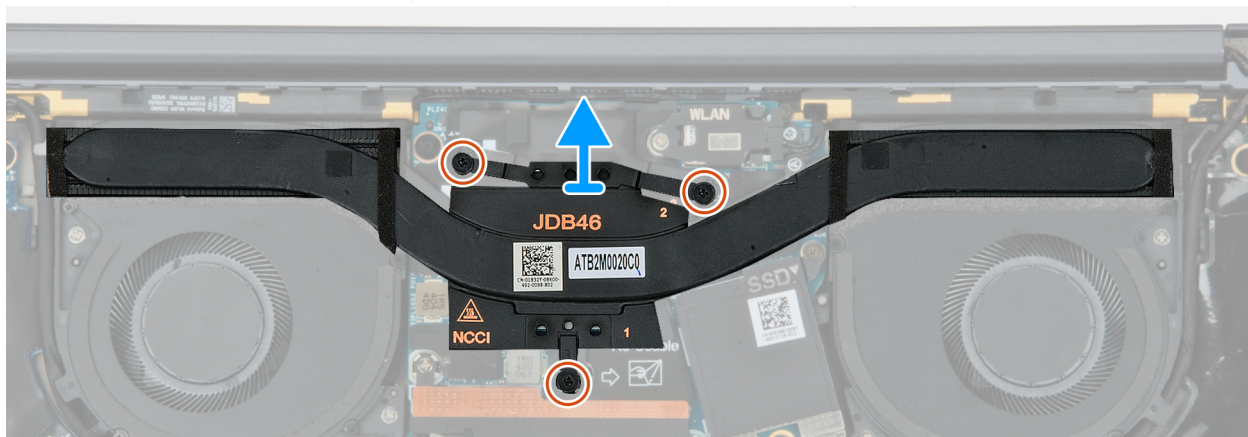
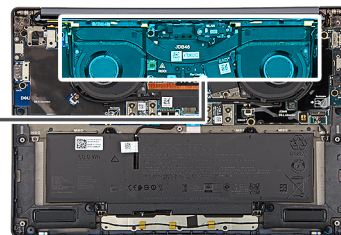
 **OPMERKING:** The heat sink may become hot during normal operation. Allow sufficient time for the heat sink to cool before you touch it.

 **OPMERKING:** For maximum cooling of the processor, do not touch the heat transfer areas on the heat sink. The oils in your skin can reduce the heat transfer capability of the thermal grease.

The following image indicates the location of the battery and provides a visual representation of the removal procedure.



3x



Afbeelding 35. Removing the heat sink

Stappen

1. In reverse sequential order (3>2>1), loosen the three captive screws that secure the heat sink to the system board.
2. Lift the heat sink off the system board.

Installing the heat sink

 **WAARSCHUWING:** The information in this section is intended for authorized service technicians only.

Vereisten

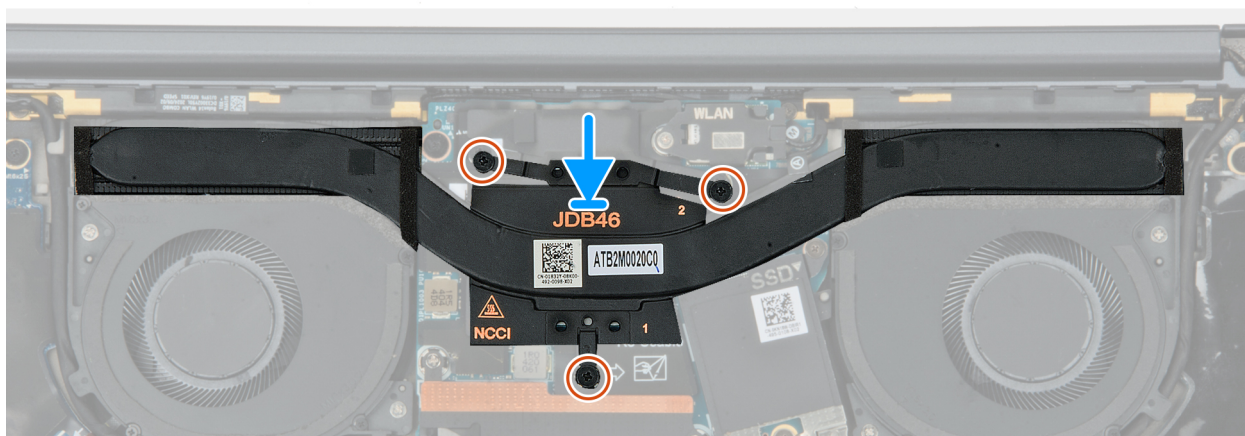
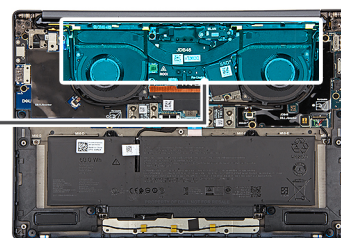
If you are replacing a component, remove the existing component before performing the installation process.

Over deze taak

The following image indicates the location of the heat sink and provides a visual representation of the installation procedure.



3x



Afbeelding 36. Installing the heat sink

Stappen

1. Place the heat sink on the system board.
2. Align the screw holes on the heat sink with the screw holes on the system board.
3. In sequential order (1>2>3) tighten the three captive screws that secure the heat sink to the system board.

OPMERKING: You must apply the XPG gel to the DRAMs of the CPU package.

Vervolgstappen

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

I/O-kaart

Removing the left I/O-board

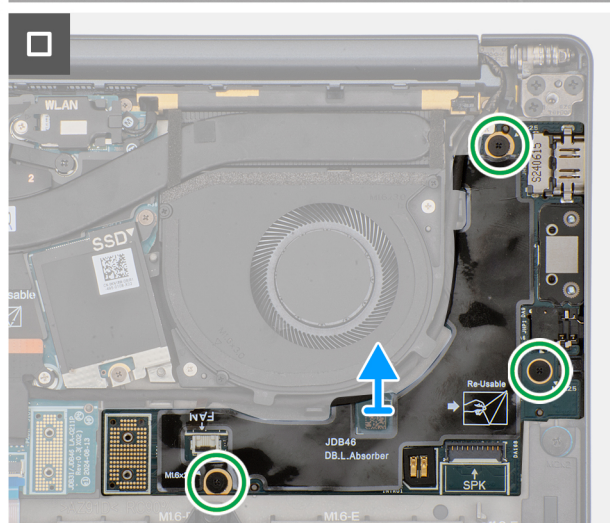
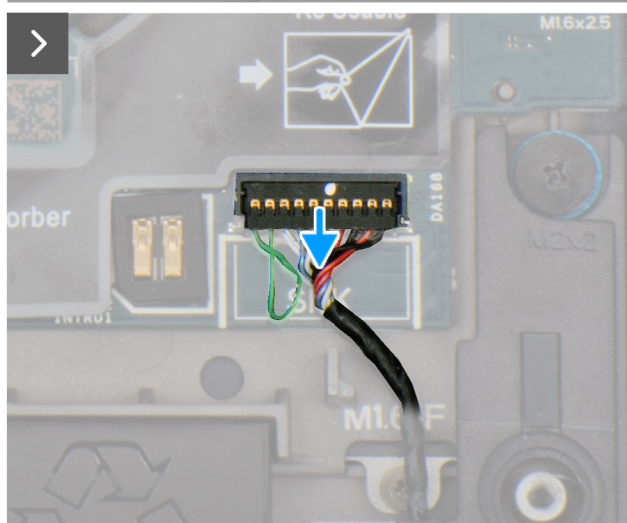
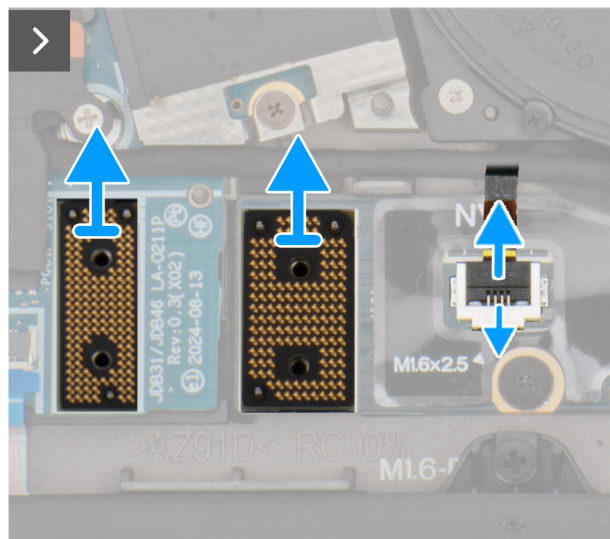
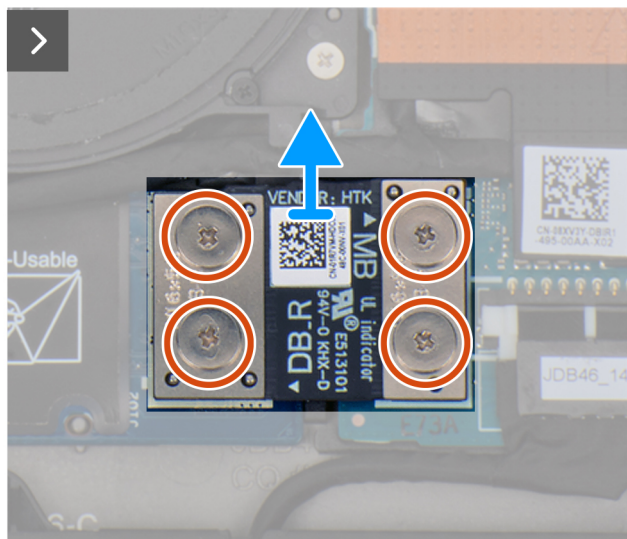
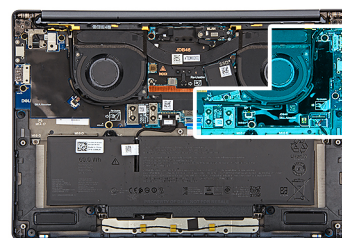
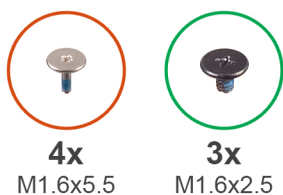
WAARSCHUWING: The information in this section is intended for authorized service technicians only.

Vereisten

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

Over deze taak

The following image indicates the location of the left I/O-board and provides a visual representation of the removal procedure.



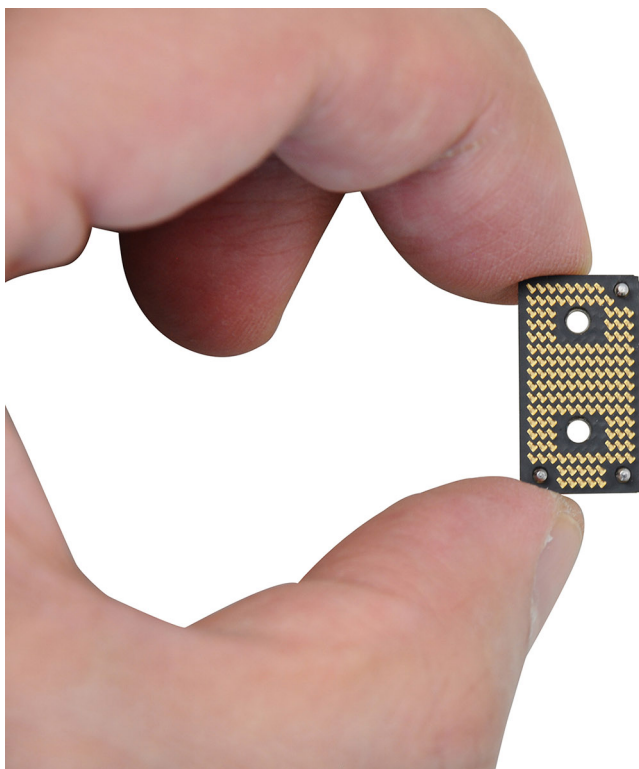
Afbeelding 37. Removing the left I/O-board

Stappen

1. Remove the four screws (M1.6x5.5) that secure the left I/O-board connector to the system board.
2. Remove the left I/O-board connector from the system board.
3. Remove the two interposer boards from the left-I/O board and system board.

WAARSCHUWING: Technicians must remove the interposer board immediately after removing the I/O-board connector to prevent the board from falling out of the system during subsequent removal procedures.

OPMERKING: The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Afbeelding 38. Interposer board handling

4. Disconnect and remove the speaker cable and left-fan cable from the left I/O-board.
 5. Remove the three screws (M1.6x2.5) that secure the left I/O-board on the palm-rest and keyboard assembly.
 6. Lift to remove the left I/O-board off the palm-rest and keyboard assembly.
-  **OPMERKING:** When replacing the left I/O-board, ensure that the left USB Type-C module is removed and transferred to the new replacement left I/O-board.

Installing the left I/O-board

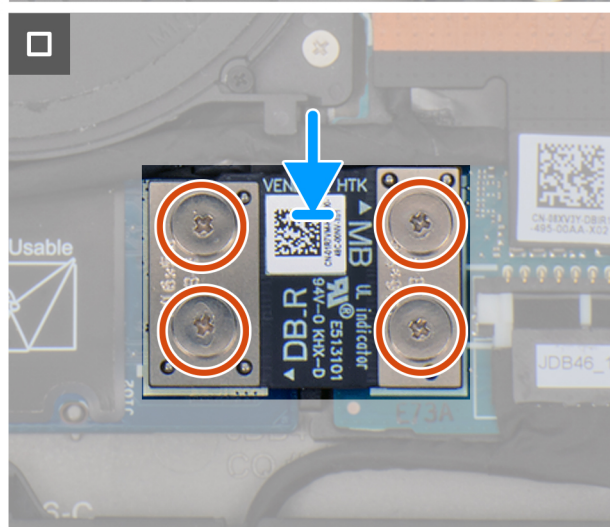
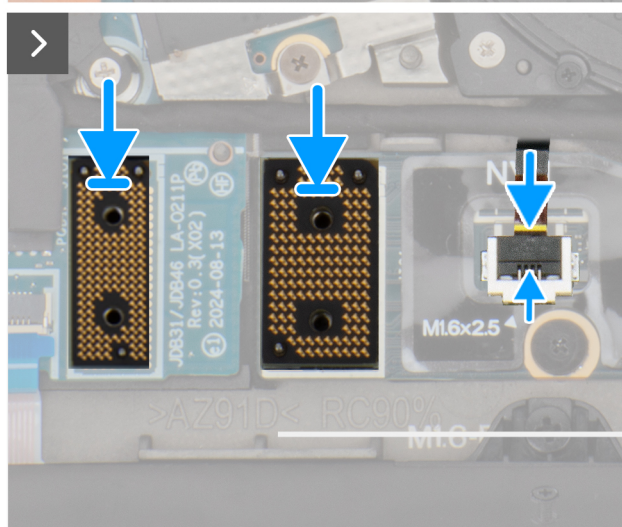
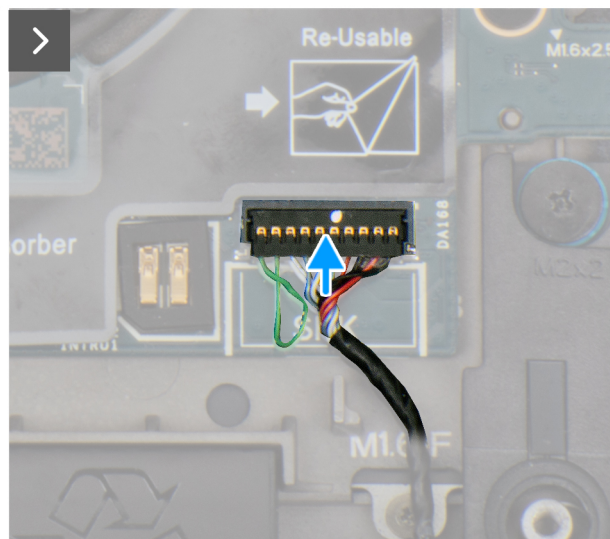
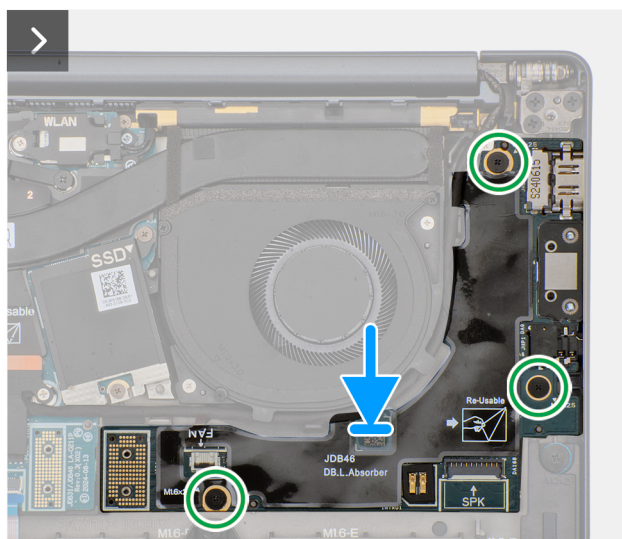
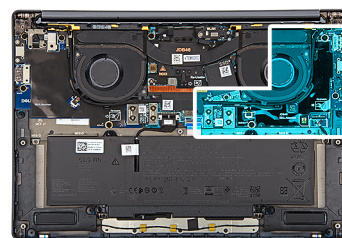
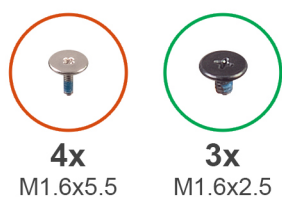
 **WAARSCHUWING:** The information in this section is intended for authorized service technicians only.

Vereisten

If you are replacing a component, remove the existing component before performing the installation process.

Over deze taak

The following image indicates the location of the left I/O-board and provides a visual representation of the installation procedure.

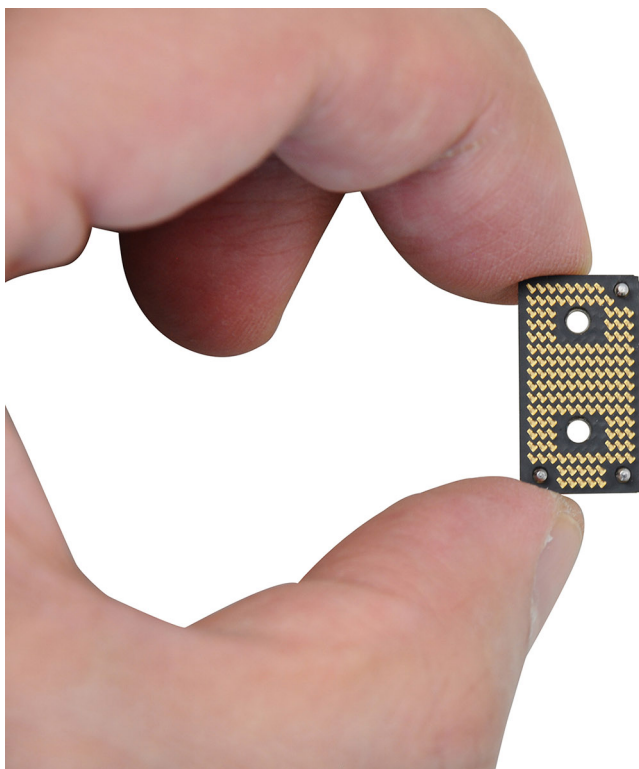


Afbeelding 39. Installing the left I/O-board

Stappen

1. Place the left I/O-board on the palm-rest and keyboard assembly.
2. Align the screw holes on the left I/O-board with the screw holes on the palm-rest and keyboard assembly.
3. Replace the three screws (M1.6x2.5) that secure the left I/O-board on the palm-rest and keyboard assembly.
4. Connect the speaker cable and left-fan cable to the left I/O-board.
5. Replace the two interposer boards from the left-I/O board and system board.

OPMERKING: The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Afbeelding 40. Holding the interposer board

6. Replace the left I/O-board connector on the system board.
7. Replace the four screws (M1.6x5.5) that secure the left I/O-board connector on the system board.

Vervolgstappen

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Removing the right I/O-board (without WWAN antennas)

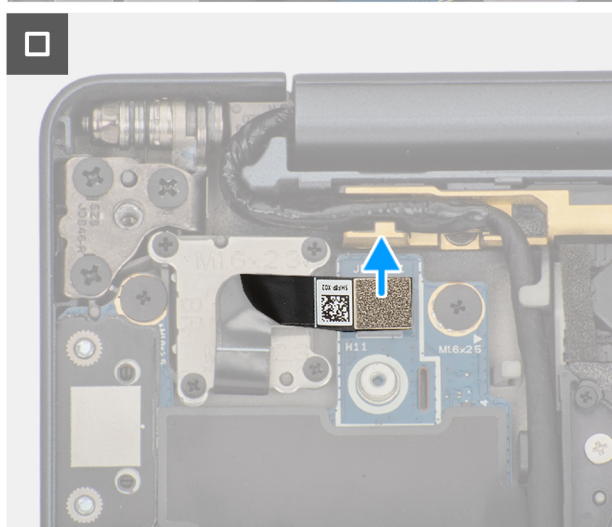
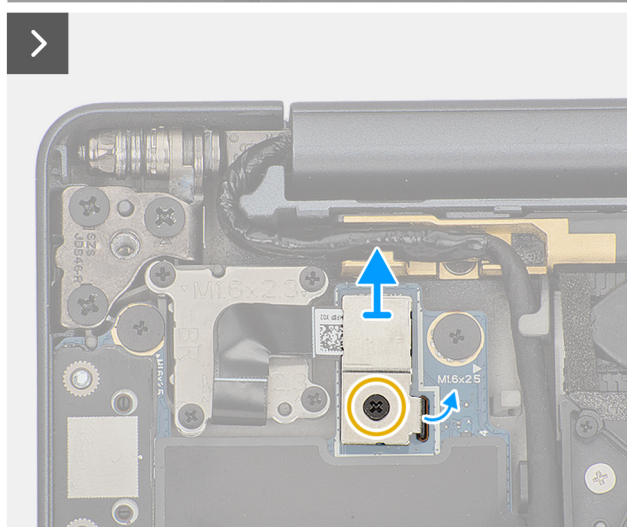
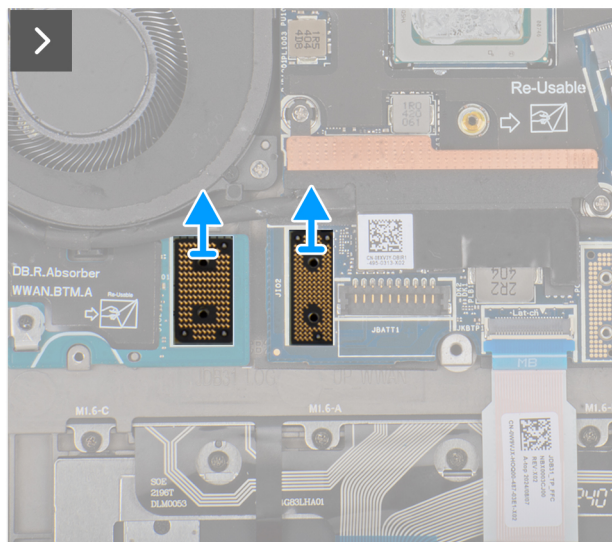
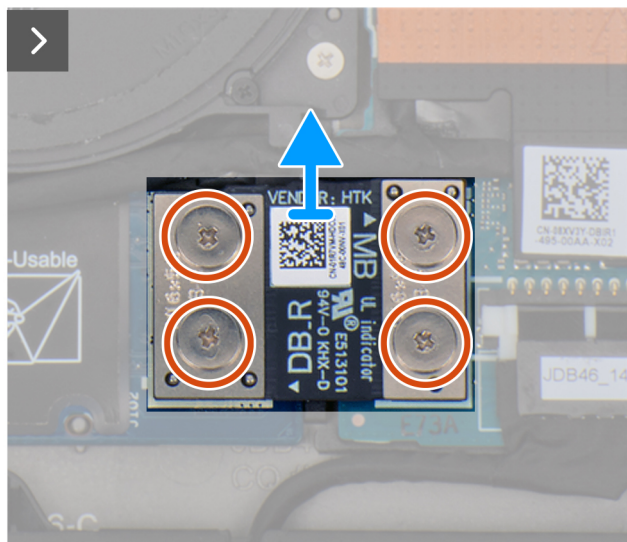
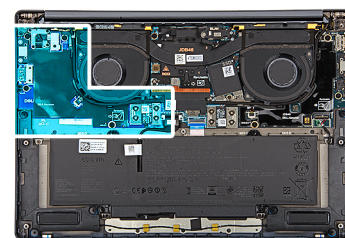
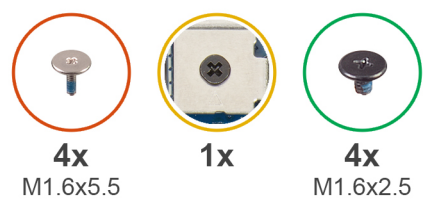
 **WAARSCHUWING:** The information in this section is intended for authorized service technicians only.

Vereisten

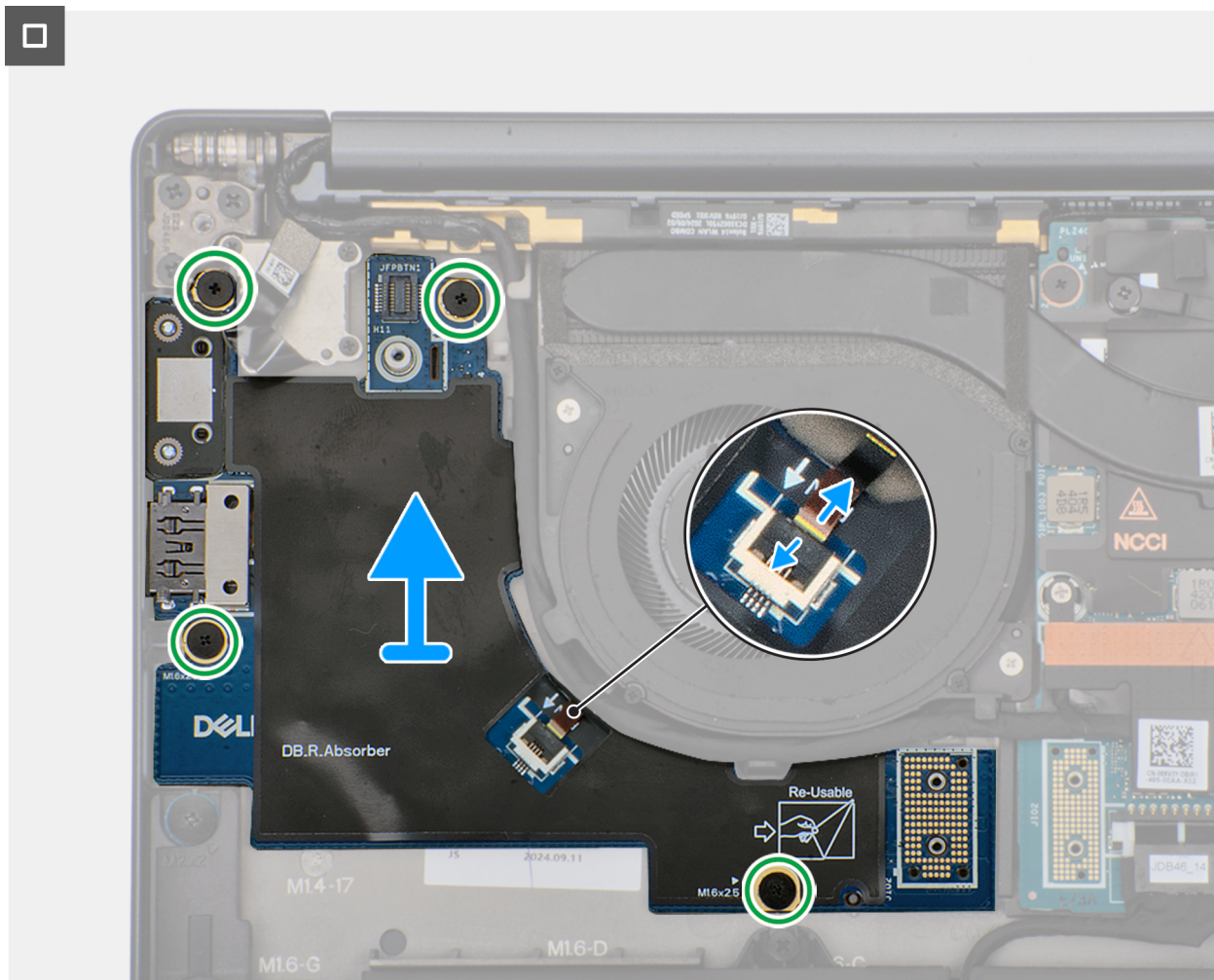
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).

Over deze taak

The following image indicates the location of the right I/O-board and provides a visual representation of the removal procedure.



Afbeelding 41. Removing the screws



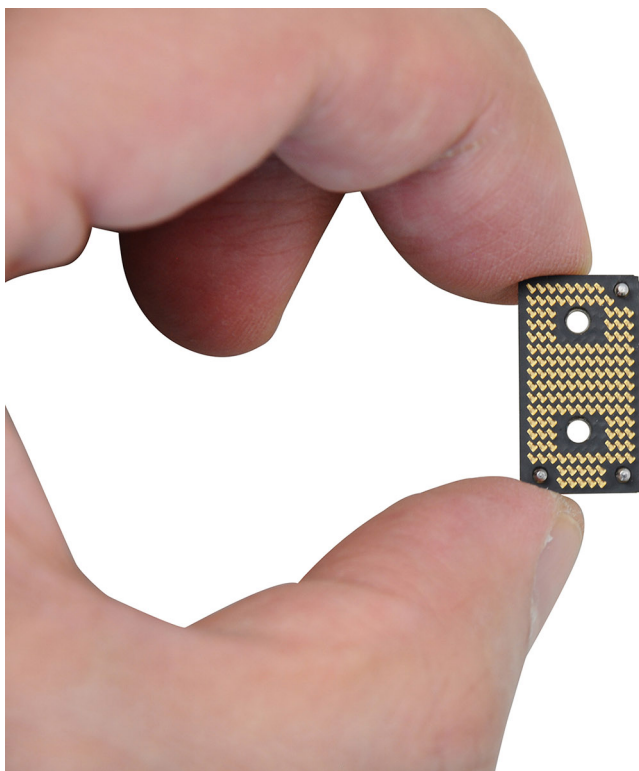
Afbeelding 42. Removing the right I/O-board (without WWAN antennas)

Stappen

1. Remove the four screws (M1.6x5.5) that secure the right I/O-board connector on the system board.
2. Remove the two interposer boards from the left-I/O board and system board.

WAARSCHUWING: Technicians must remove the interposer board immediately after removing the I/O-board connector to prevent the board from falling out of the system during subsequent removal procedures.

OPMERKING: The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Afbeelding 43. Holding the interposer board

3. Loosen the single captive screw that secures the power button connector bracket on the palm-rest and keyboard assembly .
4. Remove the power-button connector bracket from the system board.
5. Remove the right I/O-board connector from the system board.
6. Disconnect the right-fan cable connector from the right I/O-board.
7. Remove the four screws (M1.6x2.5) that secure the right I/O-board on the palm-rest and keyboard assembly.
8. Lift to remove the right I/O-board off the palm-rest and keyboard assembly.

OPMERKING: When replacing the right I/O-board, ensure that the right USB Type-C module is removed and transferred to the new replacement right I/O-board.

Installing the right I/O-board (without WWAN antennas)

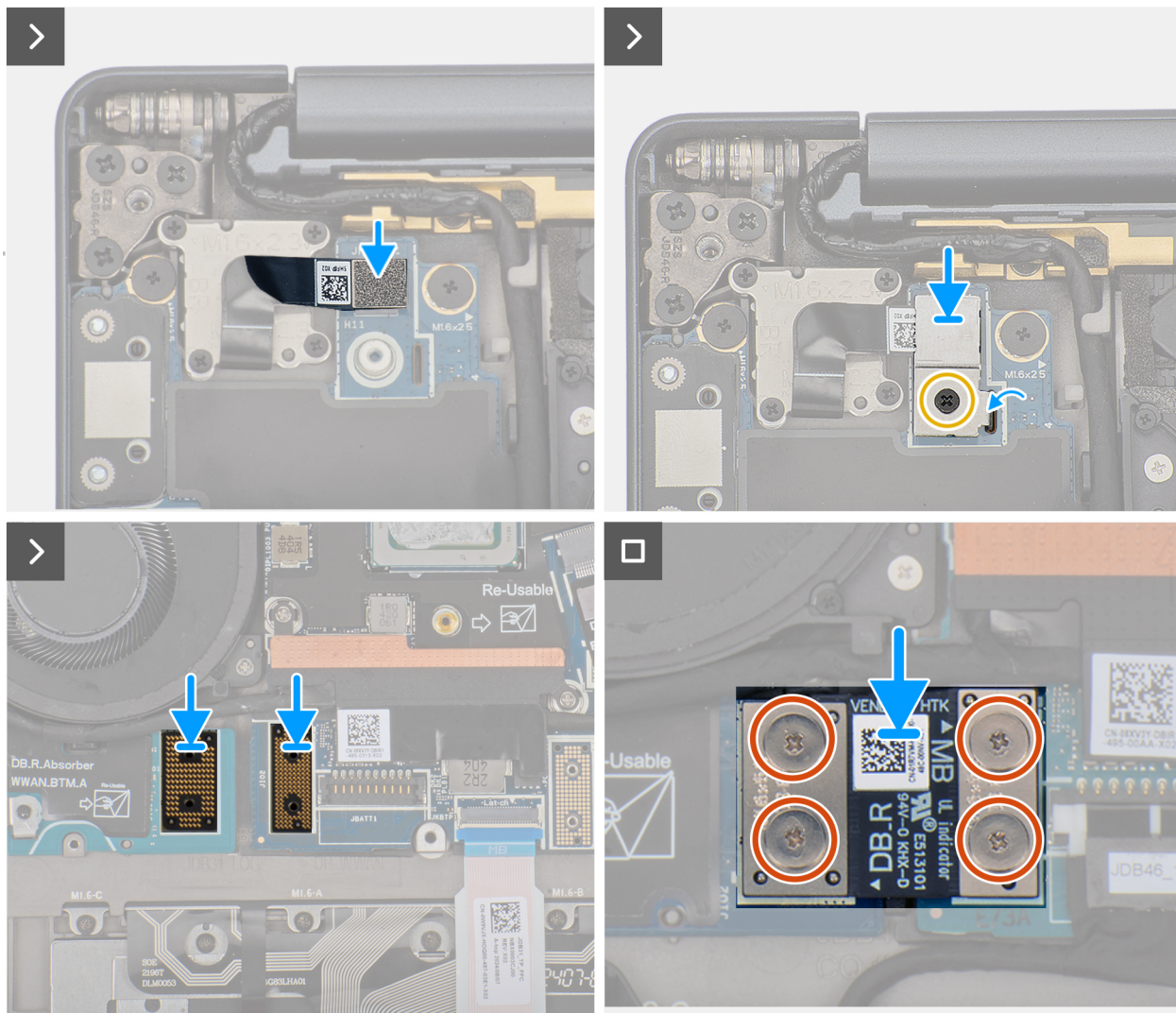
WAARSCHUWING: The information in this section is intended for authorized service technicians only.

Vereisten

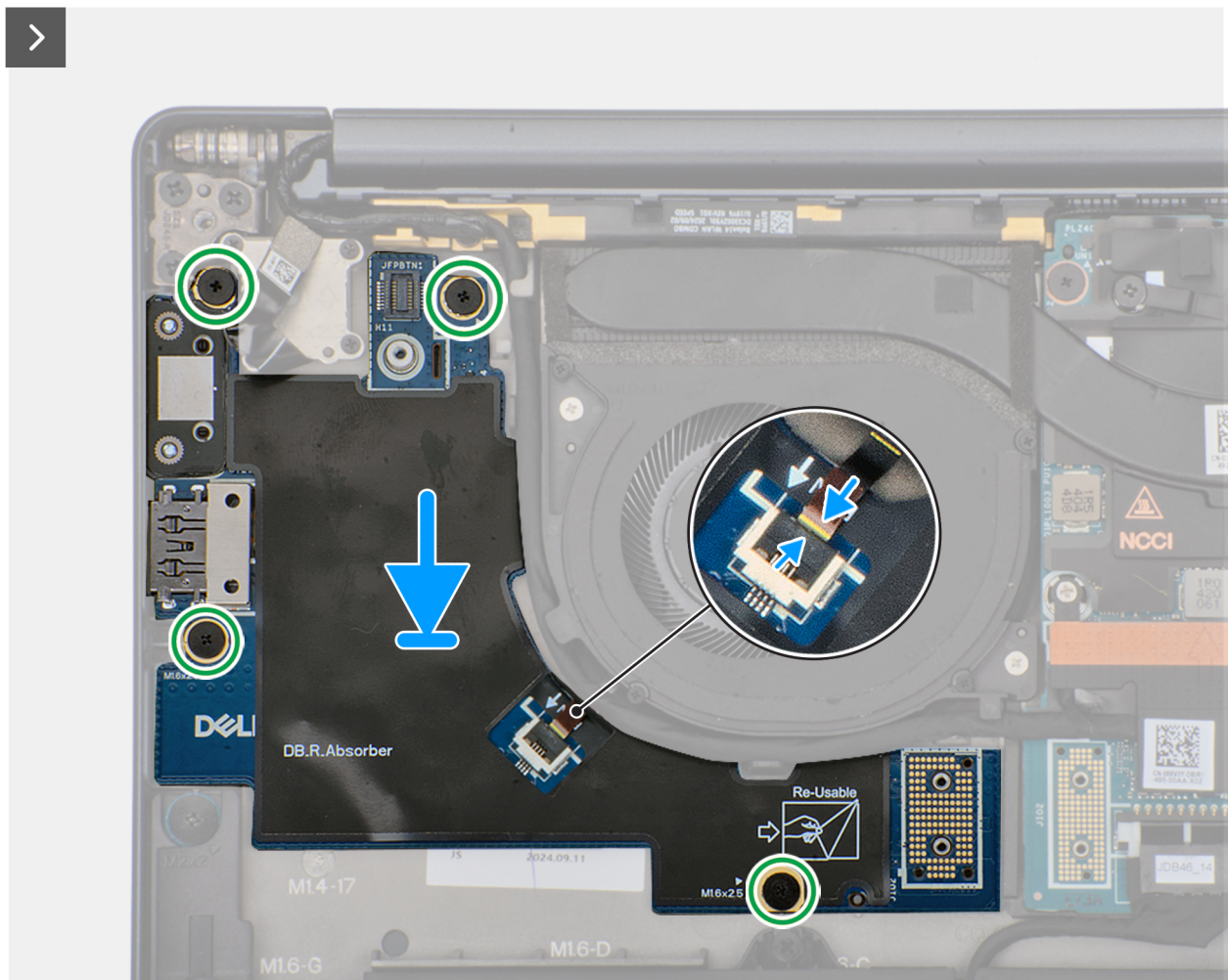
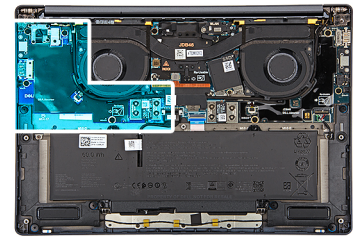
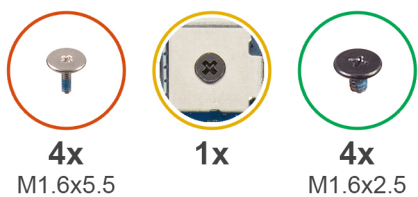
If you are replacing a component, remove the existing component before performing the installation process.

Over deze taak

The following image indicates the location of the right I/O-board and provides a visual representation of the installation procedure.



Afbeelding 44. Installing the screws

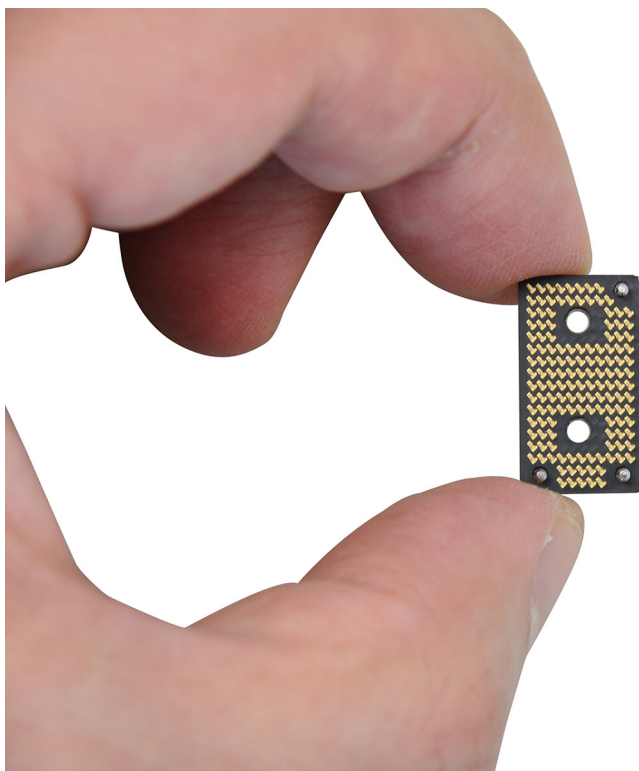


Afbeelding 45. Installing the right I/O-board (without WWAN antennas)

Stappen

1. Place the right I/O-board on the palm-rest and keyboard assembly.
2. Align the screw holes on the right I/O-board with the screw holes on the palm-rest and keyboard assembly.
3. Replace the four screws (M1.6x2.5) that secure the right I/O-board on the palm-rest and keyboard assembly.
4. Connect the right-fan cable connector to the right I/O-board.
5. Replace the right I/O-board connector to the system board.
6. Replace the power-button connector bracket on the system board.
7. Tighten the single captive screw that secures the power button connector bracket on the palm-rest and keyboard assembly .
8. Replace the two interposer boards from the right-I/O board and system board.

OPMERKING: The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Afbeelding 46. Holding the interposer board

9. Replace the four screws (M1.6x5.5) that secure the right I/O-board connector on the system board.

Vervolgstappen

1. Install the [base cover](#).
2. Install the [nano-SIM card](#).
3. Install the [nano-SIM card tray](#).
4. Follow the procedure in [After working inside your computer](#).

Removing the right I/O-board (with WWAN antennas)

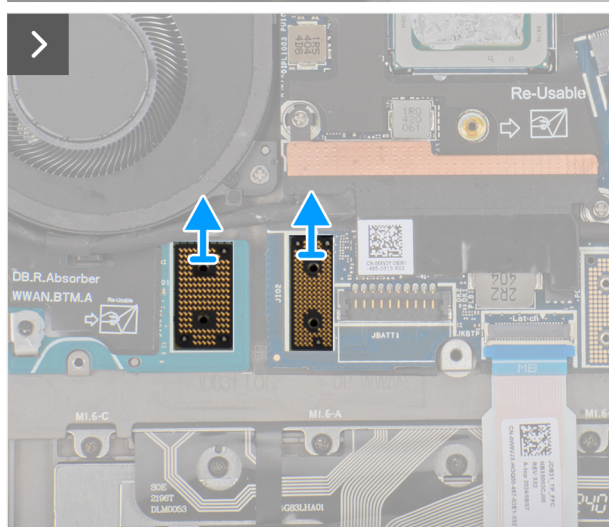
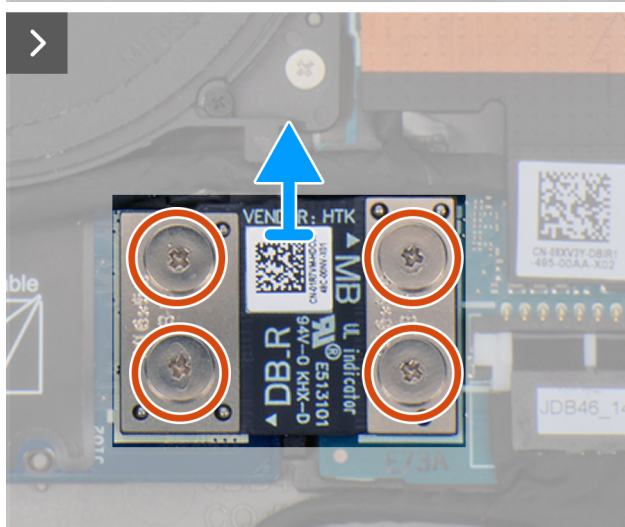
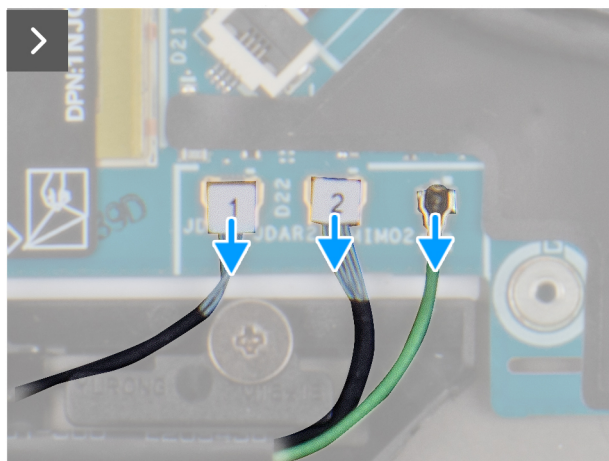
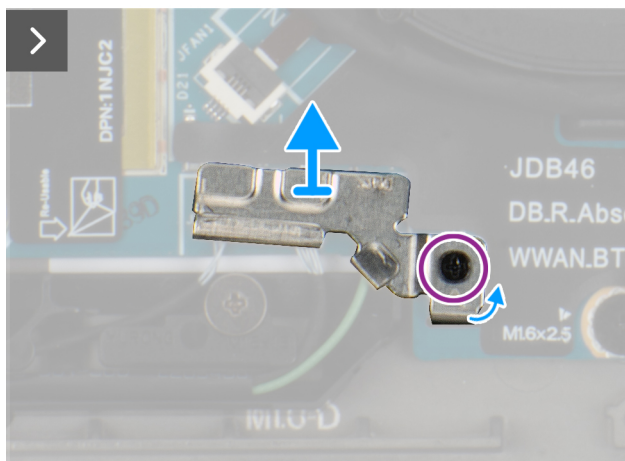
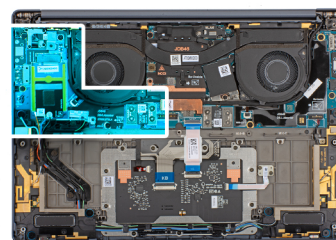
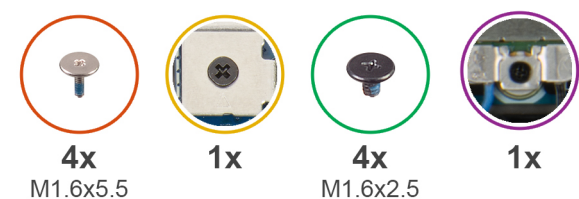
 **WAARSCHUWING:** The information in this section is intended for authorized service technicians only.

Vereisten

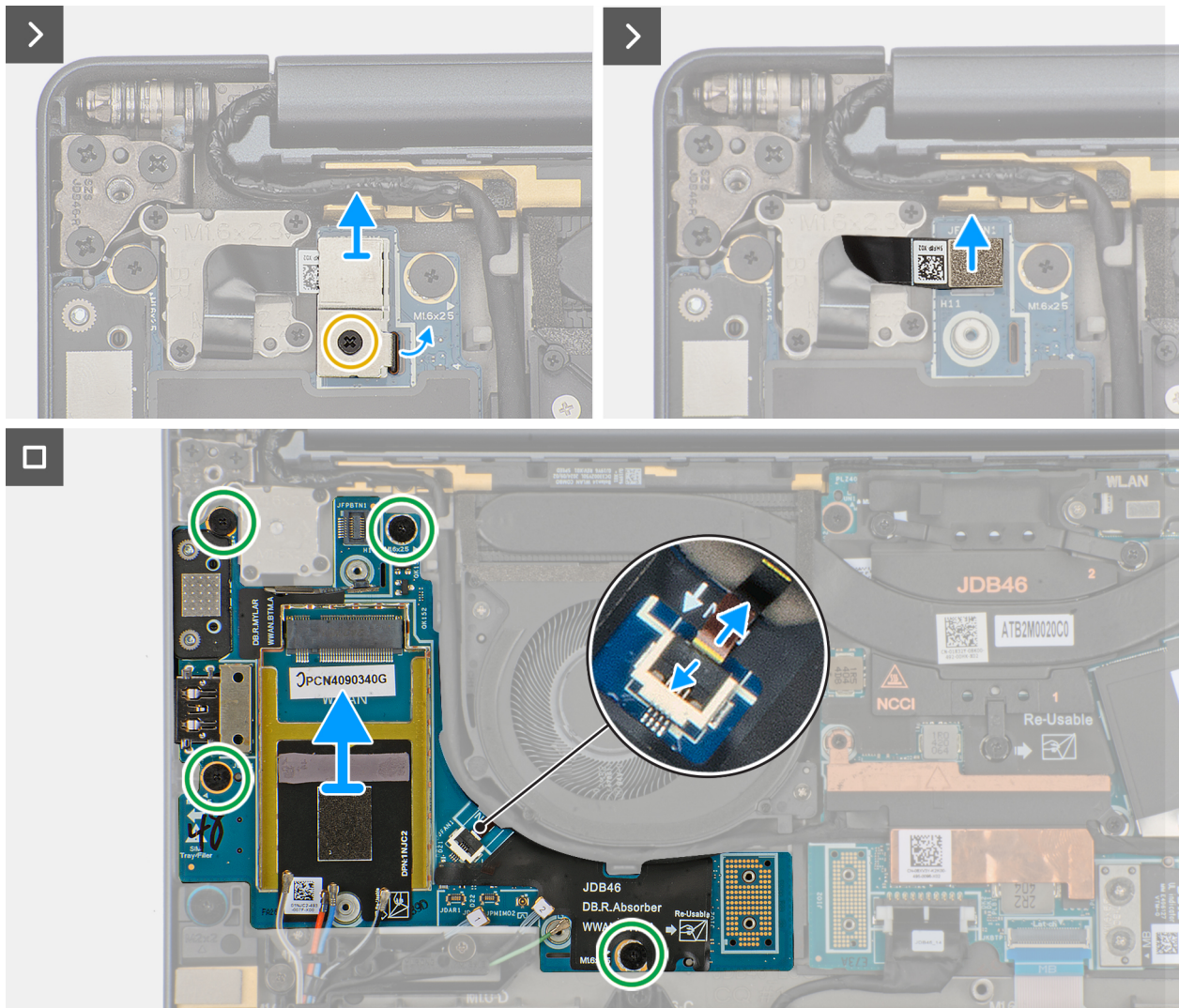
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM card tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).
5. Remove the [WWAN card](#).

Over deze taak

The following image indicates the location of the right I/O-board and provides a visual representation of the removal procedure.



Afbeelding 47. Removing the screws



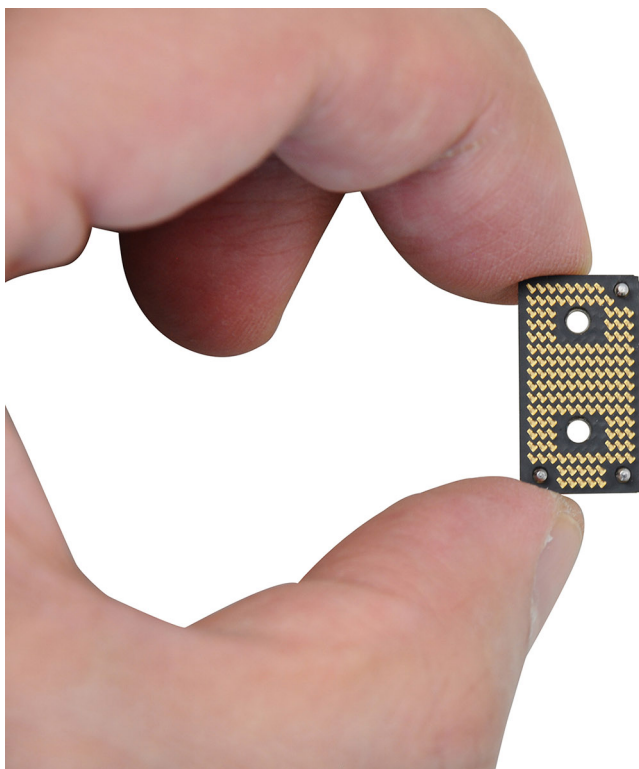
Afbeelding 48. Removing the right I/O-board (with WWAN)

Stappen

1. Loosen the single captive screw that secures the Darwin antenna-cable bracket.
2. Remove the Darwin antenna-cable bracket from the computer.
3. Disconnect the antenna cables from the right I/O-board.
4. Remove the four screws (M1.6x5.5) that secure the right I/O-board connector on the system board.
5. Remove the two interposer boards from the left-I/O board and system board.

WAARSCHUWING: Technicians must remove the interposer board immediately after removing the I/O-board connector to prevent the board from falling out of the computer during subsequent removal procedures.

OPMERKING: The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Afbeelding 49. Holding the interposer board

6. Loosen the single captive screw that secures the power button connector bracket on the palm-rest and keyboard assembly .
7. Remove the power-button connector bracket from the system board.
8. Remove the right I/O-board connector from the system board.
9. Disconnect the right-fan cable connector from the right I/O-board.
10. Remove the four screws (M1.6x2.5) that secure the right I/O-board on the palm-rest and keyboard assembly.
11. Lift to remove the right I/O-board off the palm-rest and keyboard assembly.

OPMERKING: When replacing the right I/O-board, ensure that the right USB Type-C module is removed and transferred to the new replacement right I/O-board.

Installing the right I/O-board (with WWAN antennas)

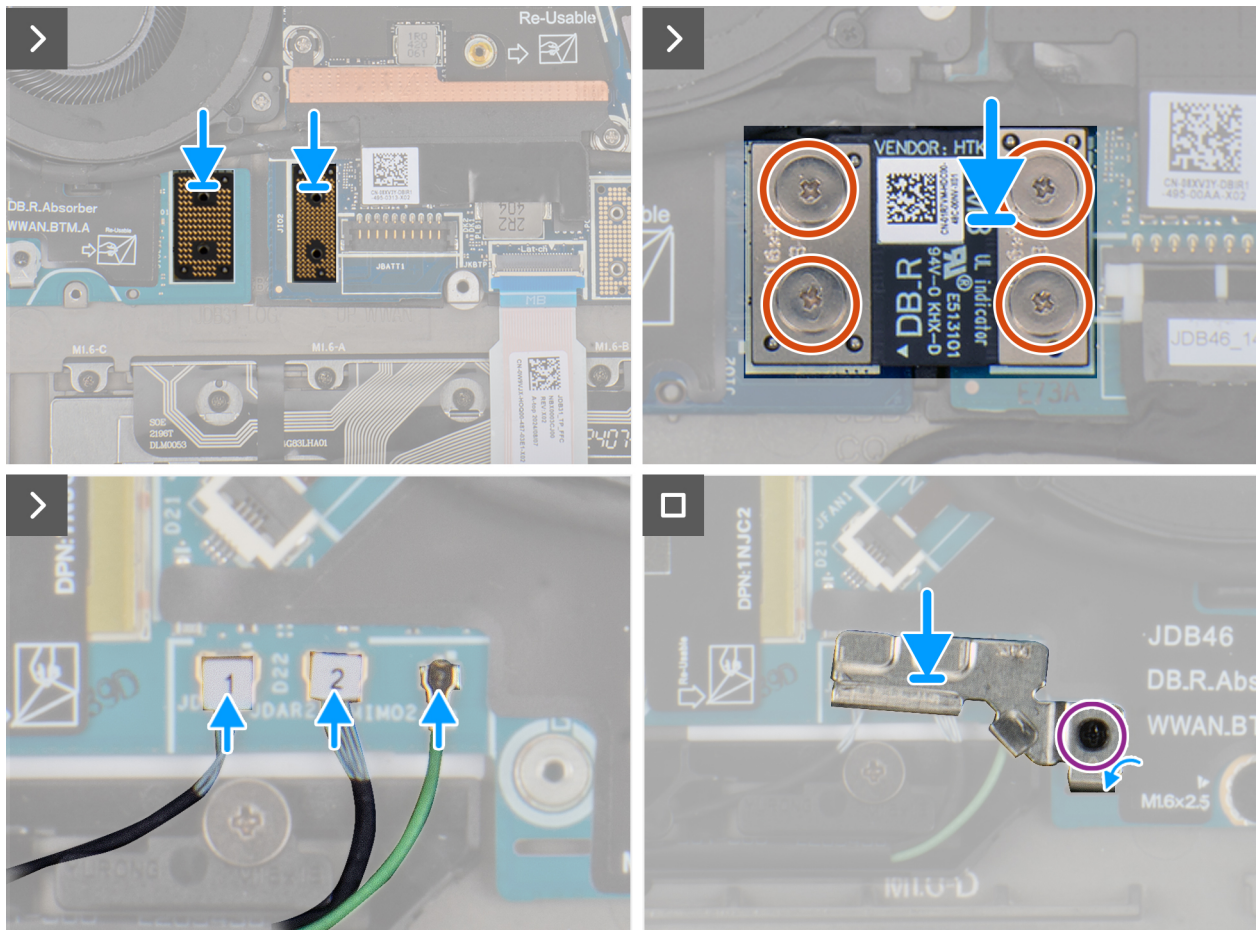
WAARSCHUWING: The information in this section is intended for authorized service technicians only.

Vereisten

If you are replacing a component, remove the existing component before performing the installation process.

Over deze taak

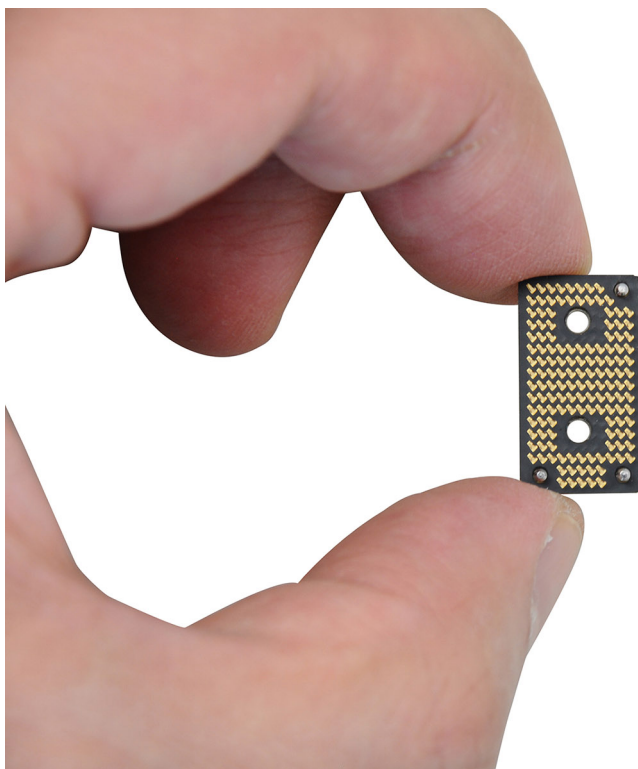
The following image indicates the location of the right I/O-board and provides a visual representation of the installation procedure.



Afbeelding 51. Installing the right I/O-board (with WWAN)

Stappen

1. Place the right I/O-board on the palm-rest and keyboard assembly.
 2. Align the screw holes on the right I/O-board with the screw holes on the palm-rest and keyboard assembly.
 3. Replace the four screws (M1.6x2.5) that secure the right I/O-board on the palm-rest and keyboard assembly.
 4. Connect the right-fan cable connector to the right I/O-board.
 5. Replace the right I/O-board connector to the system board.
 6. Replace the power-button connector bracket on the system board.
 7. Tighten the single captive screw that secures the power button connector bracket on the palm-rest and keyboard assembly .
 8. Replace the two interposer boards from the right I/O-board and system board.
- OPMERKING:** The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Afbeelding 52. Holding the interposer board

9. Replace the four screws (M1.6x5.5) that secure the right I/O-board connector on the system board.
10. Connect the antenna cables to the right I/O-board.
11. Replace the Darwin antenna-cable bracket on the computer.
12. Tighten the single captive screw that secures the Darwin antenna-cable bracket.

Vervolgstappen

1. Install the [WWAN card](#).
2. Install the [base cover](#).
3. Install the [nano-SIM card](#).
4. Install the [nano-SIM card tray](#).
5. Follow the procedure in [After working inside your computer](#).

USB Type-C module

Removing the left USB Type-C module

 **WAARSCHUWING:** The information in this section is intended for authorized service technicians only.

Vereisten

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [left I/O-board](#).

Over deze taak

The following image indicates the location of the left USB Type-C module and provides a visual representation of the removal procedure.



2x
M2x5



Afbeelding 53. Removing the left USB Type-C module

Stappen

1. Remove the two screws (M2x5) that secure the left USB Type-C module to the left I/O-board.
2. Lift the left USB Type-C module off the left I/O-board.

Installing the left USB Type-C module

 **WAARSCHUWING:** The information in this section is intended for authorized service technicians only.

Over deze taak

The following image indicates the location of the left Type-C USB module and provides a visual representation of the installation procedure.



Afbeelding 54. Installing the left USB Type-C module

Stappen

1. Place the left USB Type-C module on the left I/O-board.
2. Align the screw holes on the left USB Type-C module with the screw holes on the left I/O-board.
3. Replace the two screws (M2x5) that secure the left USB Type-C module to the left I/O-board.

Vervolgstappen

1. Install the [left I/O-board](#).
2. Install the [base cover](#).
3. Follow the procedure in [After working inside your computer](#).

Removing the right USB Type-C module

WAARSCHUWING: The information in this section is intended for authorized service technicians only.

Vereisten

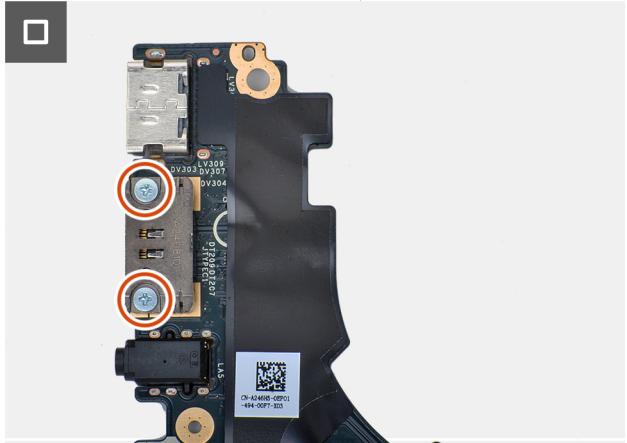
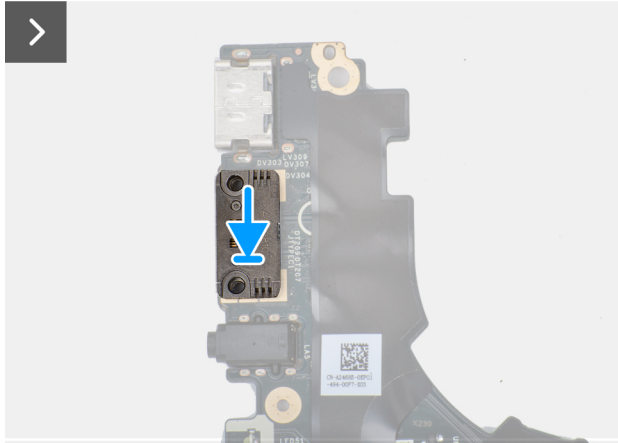
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM card tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).
5. Remove the [WWAN card](#) (for the computer shipped with WWAN card).
6. Remove the [right I/O-board](#) (for the computer shipped with WWAN card).
7. Remove the [right I/O-board](#) (for the computer shipped without WWAN card).

Over deze taak

The following image indicates the location of the right USB Type-C module and provides a visual representation of the removal procedure.



2x
M2x5



Afbeelding 55. Removing the right USB Type-C module

Stappen

1. Remove the two screws (M2x5) that secure the right USB Type-C module to the right I/O-board.
2. Lift the right USB Type-C module off the right I/O-board.

Installing the right USB Type-C module

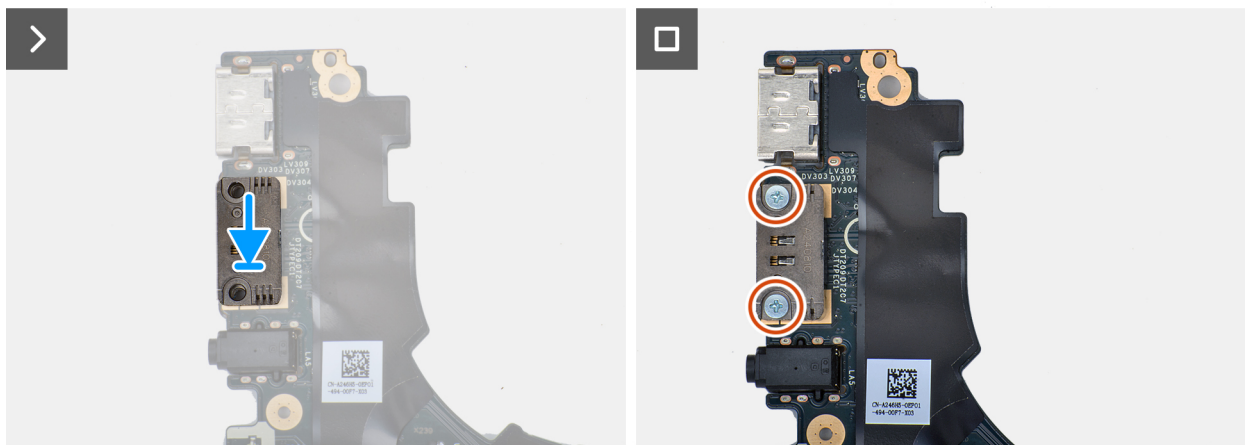
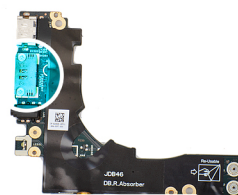
WAARSCHUWING: The information in this section is intended for authorized service technicians only.

Over deze taak

The following image indicates the location of the right USB Type-C module and provides a visual representation of the installation procedure.



2x
M2x5



Afbeelding 56. Installing the right USB Type-C module

Stappen

1. Place the right USB Type-C module on the right I/O-board.
2. Align the screw holes on the right USB Type-C module with the screw holes on the right I/O-board.
3. Replace the screw (M2x5) that secure the right USB Type-C module to the right I/O-board.

Vervolgstappen

1. Install the [right I/O-board](#) (for the computer shipped without WWAN card)..
2. Install the [right I/O-board](#) (for the computer shipped with WWAN card).
3. Install the [WWAN card](#) (for the computer shipped with WWAN card).
4. Install the [base cover](#).
5. Install the [nano-SIM card](#).
6. Install the [nano-SIM card tray](#).
7. Follow the procedure in [After working inside your computer](#).

Aan/uit-knop

Removing the power button

 **WAARSCHUWING:** The information in this section is intended for authorized service technicians only.

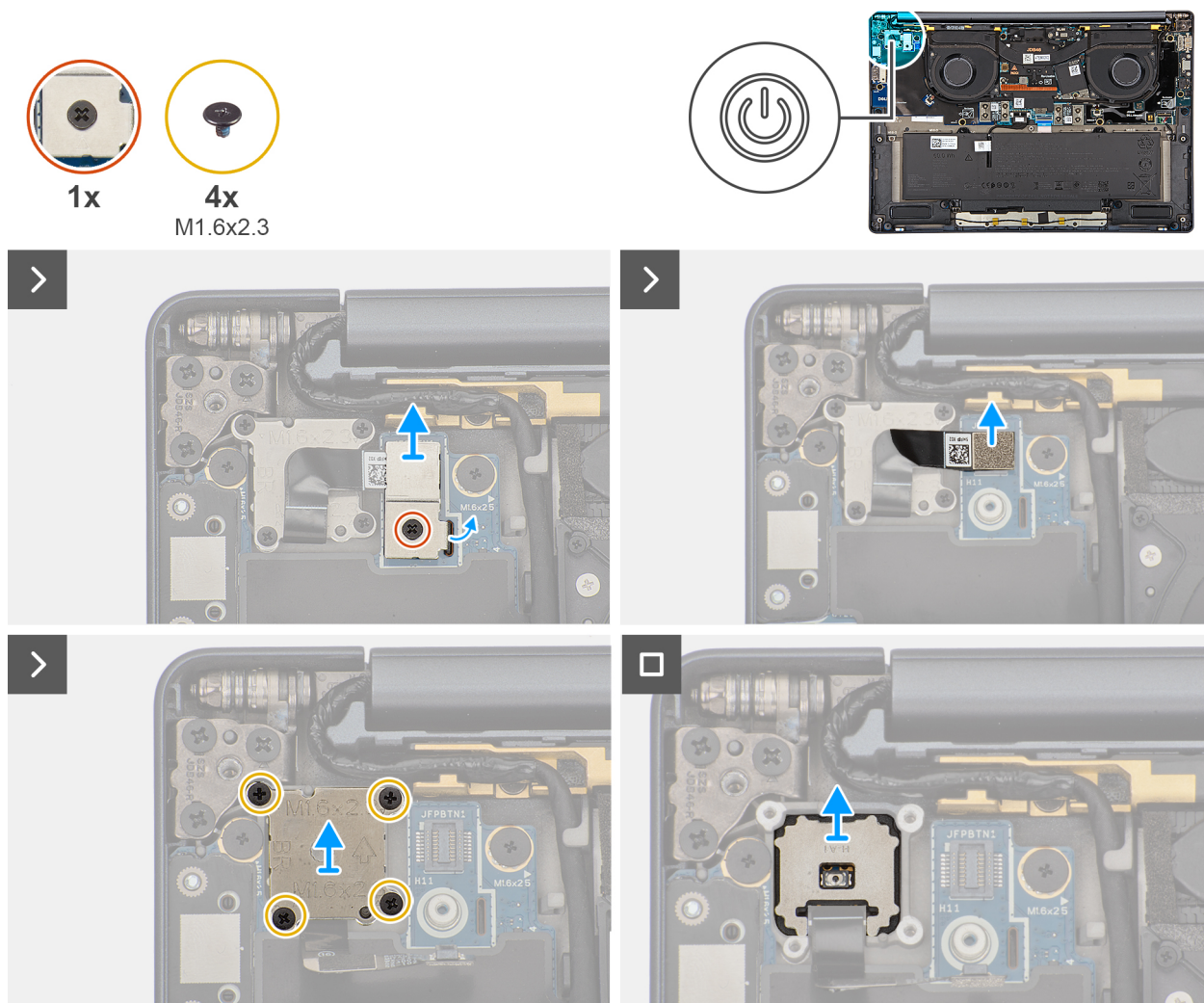
Vereisten

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM card tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).
5. Remove the [WWAN card](#) (for the computer shipped with WWAN card).
6. Remove the [right I/O-board](#) (for the computer shipped with WWAN card).
7. Remove the [right I/O-board](#) (for the computer shipped without WWAN card).

Over deze taak

OPMERKING: This procedure is applicable only for computers that are shipped without the optional fingerprint reader.

The following image indicates the location of the power button and provides a visual representation of the removal procedure.



Afbeelding 57. Removing the power button

Stappen

1. Loosen the single captive screw that secures the power-button bracket.
2. Remove the power-button bracket from the computer.
3. Disconnect the power-button cable from the right I/O-board.
4. Remove the four screws (M1.6x2.3) that secure the power button bracket with power button cable.
5. Remove the power button bracket with power button cable from the computer.
6. Lift and remove the power button from the computer.

Installing the power button

WAARSCHUWING: The information in this section is intended for authorized service technicians only.

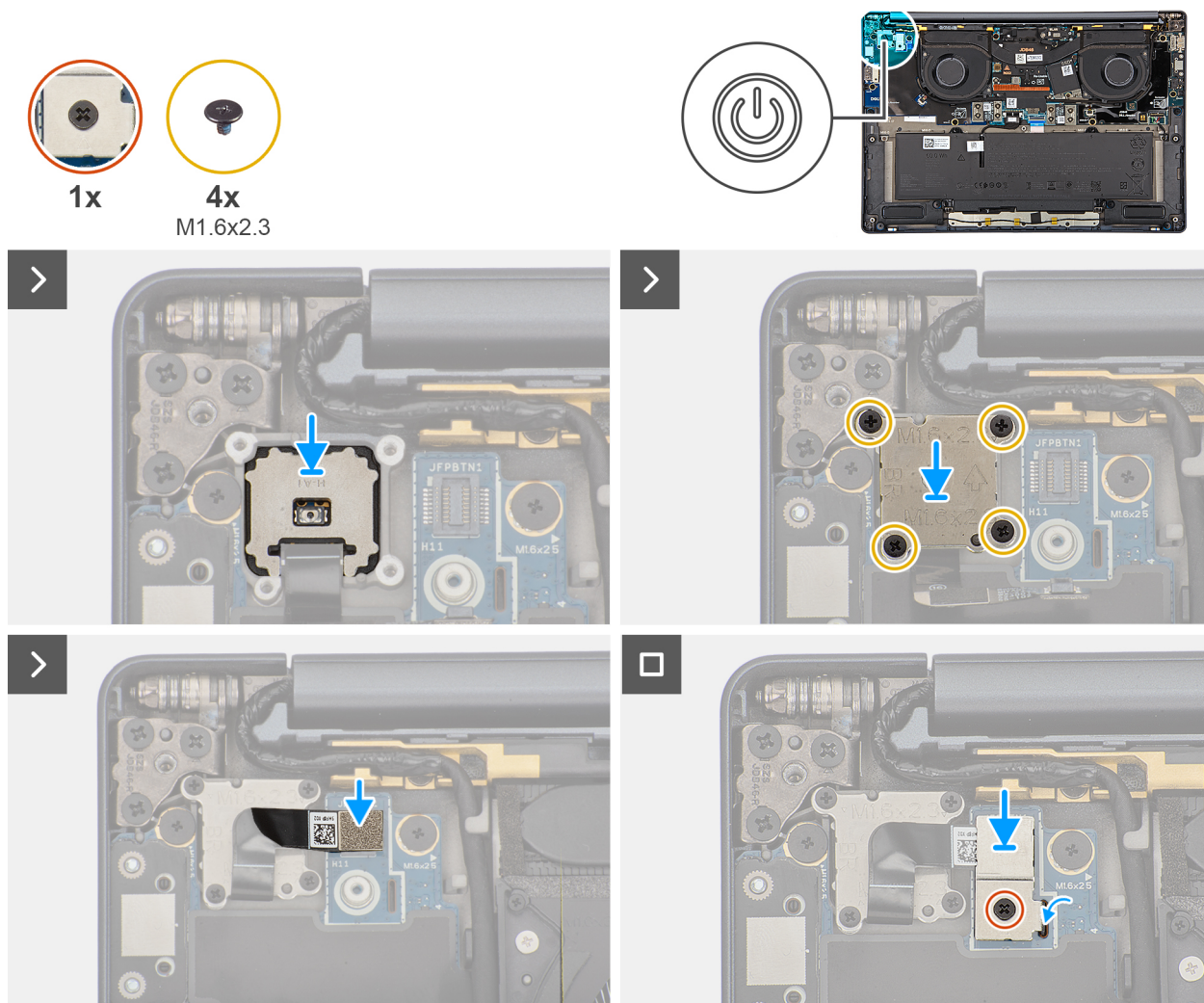
Vereisten

If you are replacing a component, remove the existing component before performing the installation procedure.

Over deze taak

OPMERKING: This procedure is applicable only when you are installing a power button without the optional fingerprint reader.

The following image indicates the location of the power button and provides a visual representation of the installation procedure.



Afbeelding 58. Installing the power button

Stappen

1. Place the power button into its slot on the palm-rest and keyboard assembly.
2. Replace the power-button bracket with the power-button cable on the computer.
3. Replace the four screws (M1.6x2.3) that secure the power-button bracket with the power-button cable.
4. Connect the power-button cable to the right I/O-board.
5. Replace the power-button bracket on the computer.
6. Tighten the single captive screw that secures the power-button bracket.

Vervolgstappen

1. Install the [right I/O-board](#) (for the computer shipped without WWAN card).
2. Install the [right I/O-board](#) (for the computer shipped with WWAN card).
3. Install the [WWAN card](#) (for the computer shipped with WWAN card).
4. Install the [base cover](#).
5. Install the [nano-SIM card](#).
6. Install the [nano-SIM card tray](#).
7. Follow the procedure in [After working inside your computer](#).

Beeldschermeenheid

Removing the display assembly

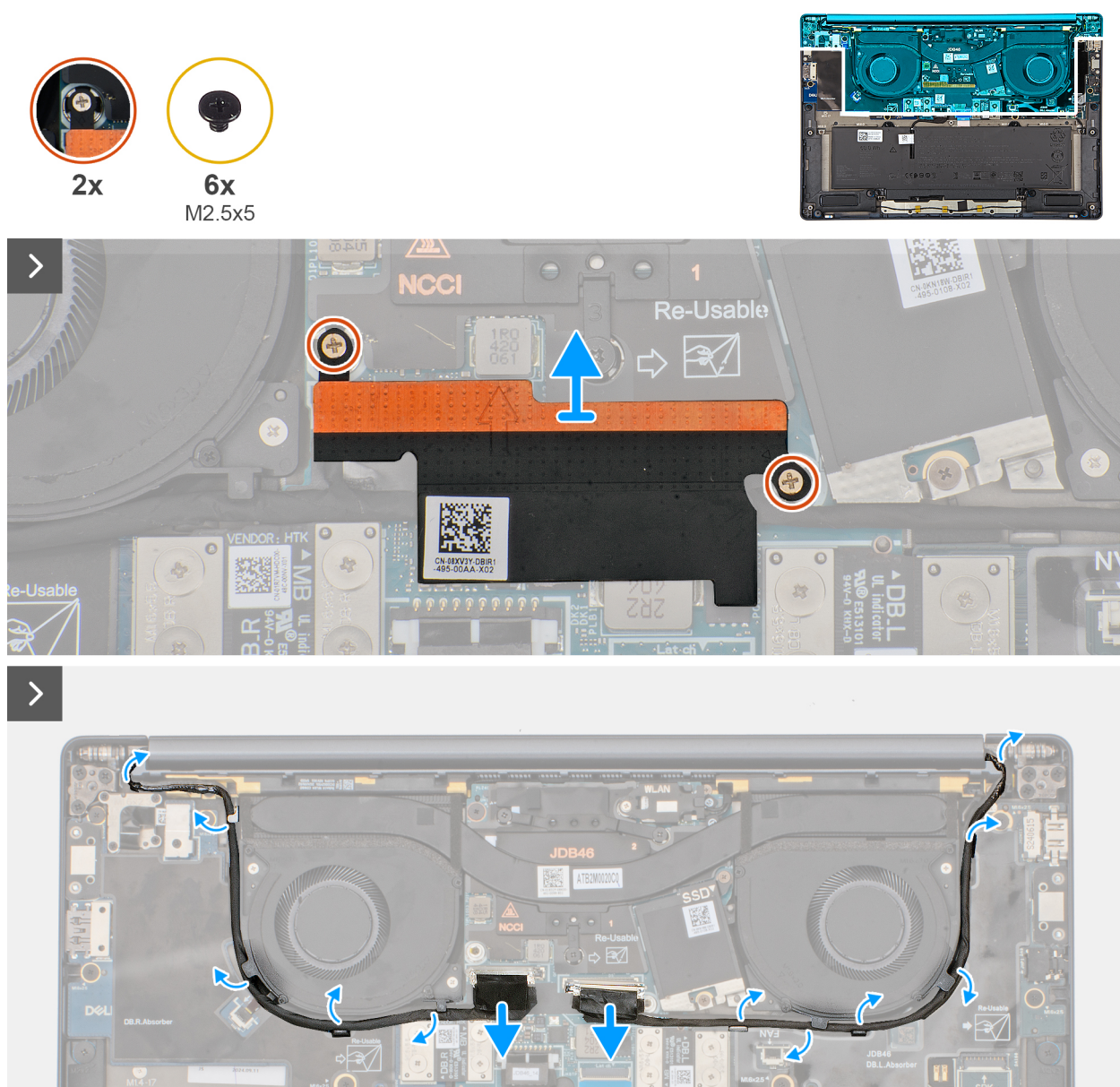
 **WAARSCHUWING:** The information in this section is intended for authorized service technicians only.

Vereisten

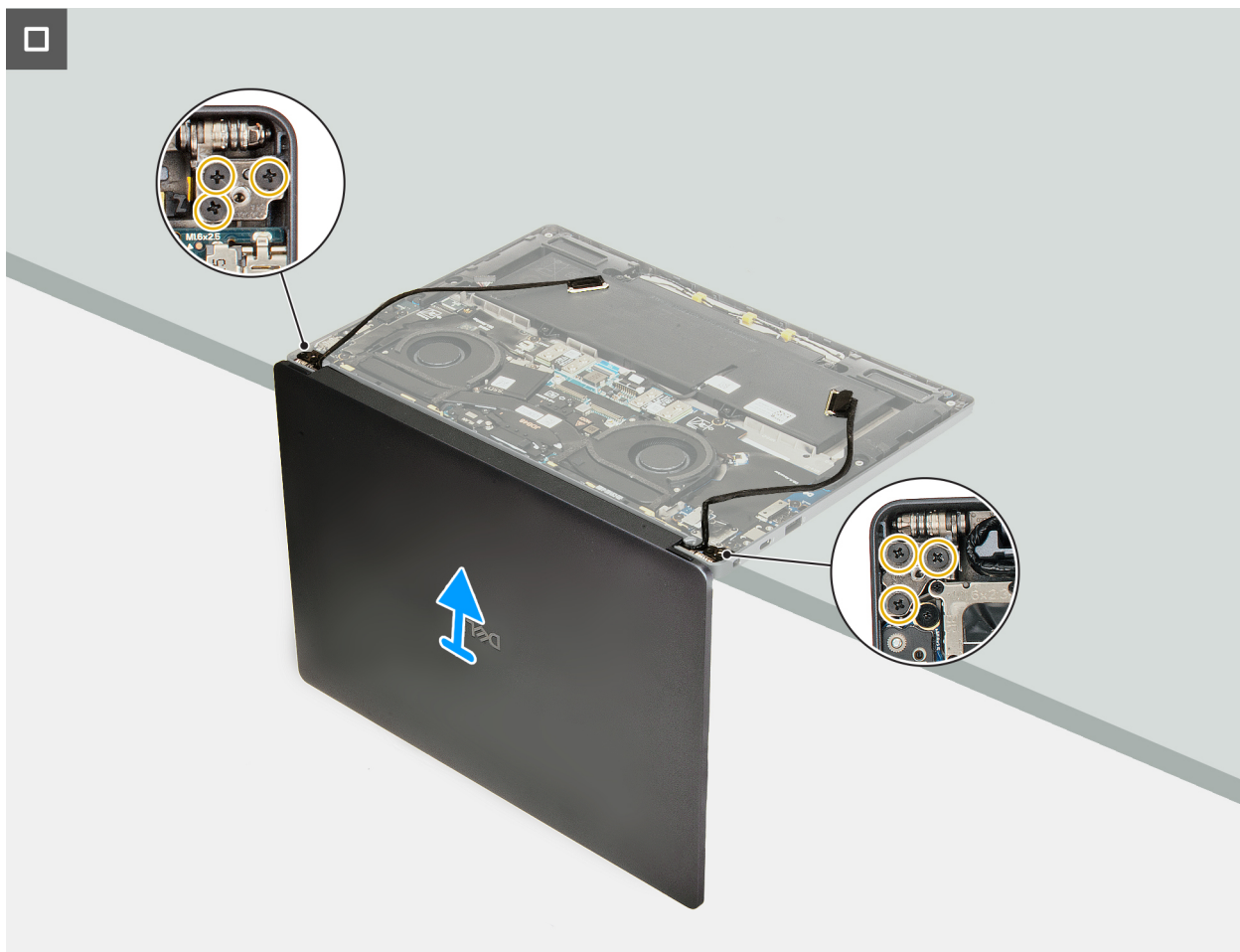
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

Over deze taak

The following images indicate the location of the display assembly and provide a visual representation of the removal procedure.



Afbeelding 59. Disconnect the display and camera cables



Afbeelding 60. Removing the display assembly



Afbeelding 61. LCD

Stappen

1. Remove the two captive screws that secure the display-cable bracket on the system board.
2. Remove the display-cable bracket from the system board.
3. Disconnect and peel off the display cable and camera cable from the system board.
4. Unthread the display cable and camera cable from the routing channels on the bottom side of the fans and the top side of the system board.
5. Pry open the computer to at least 90 degrees and place the system on the edge of a table so that the palm rest is laying flat on the table and the display assembly is over the edge.
6. Remove the six screws (M2.5x5) that secure the display assembly on the palm-rest and keyboard assembly.
7. Lift and remove the display assembly from the computer.

Installing the display assembly

WAARSCHUWING: The information in this section is intended for authorized service technicians only.

Vereisten

Als u een onderdeel vervangt, dient u het bestaande onderdeel te verwijderen alvorens de installatieprocedure uit te voeren.

Over deze taak

OPMERKING: Ensure that the hinges are opened to the maximum before replacing the display assembly on the palm-rest and keyboard assembly.

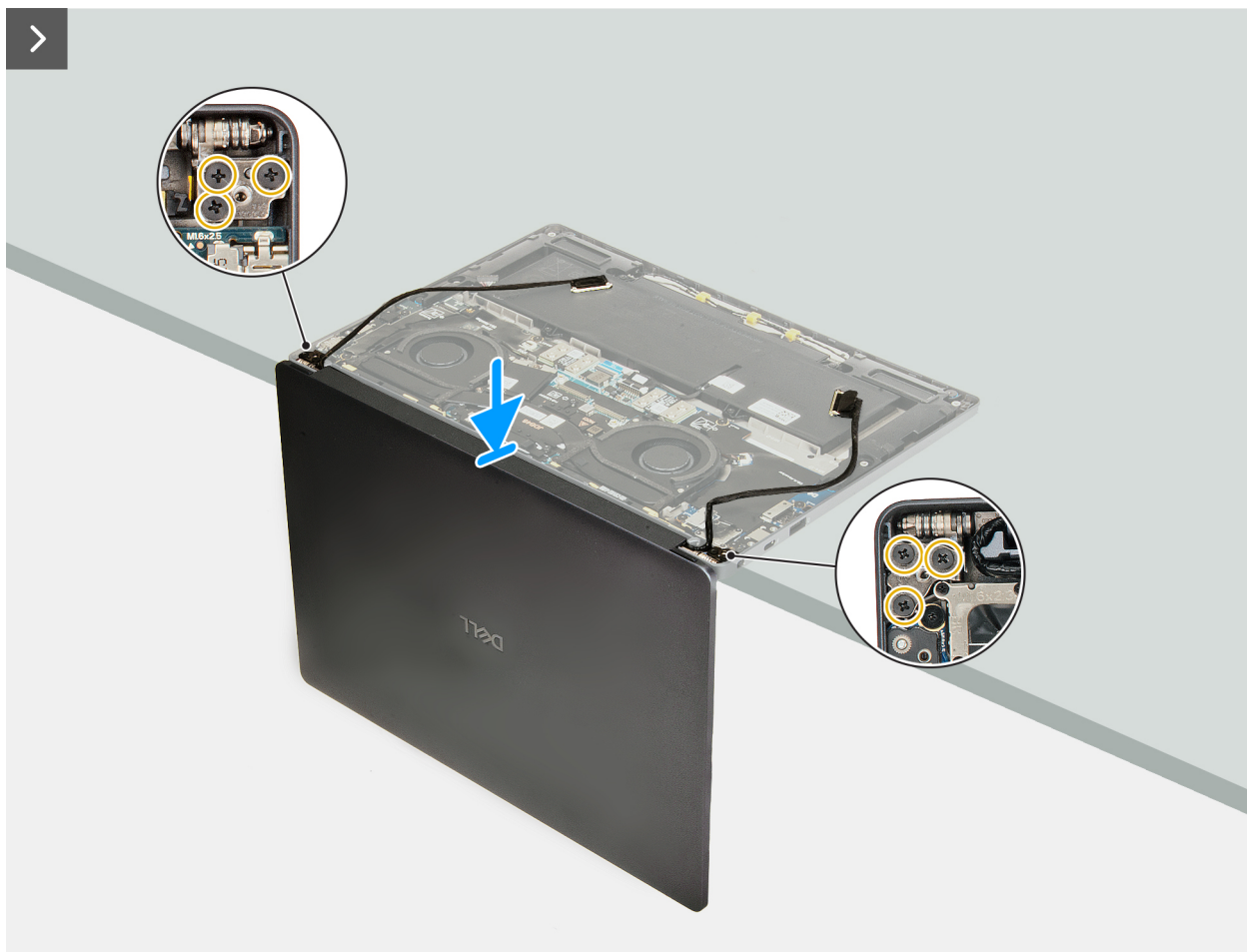
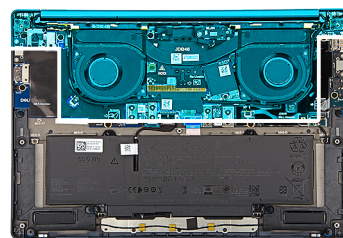
The following images indicate the location of the display assembly and provide a visual representation of the installation procedure.



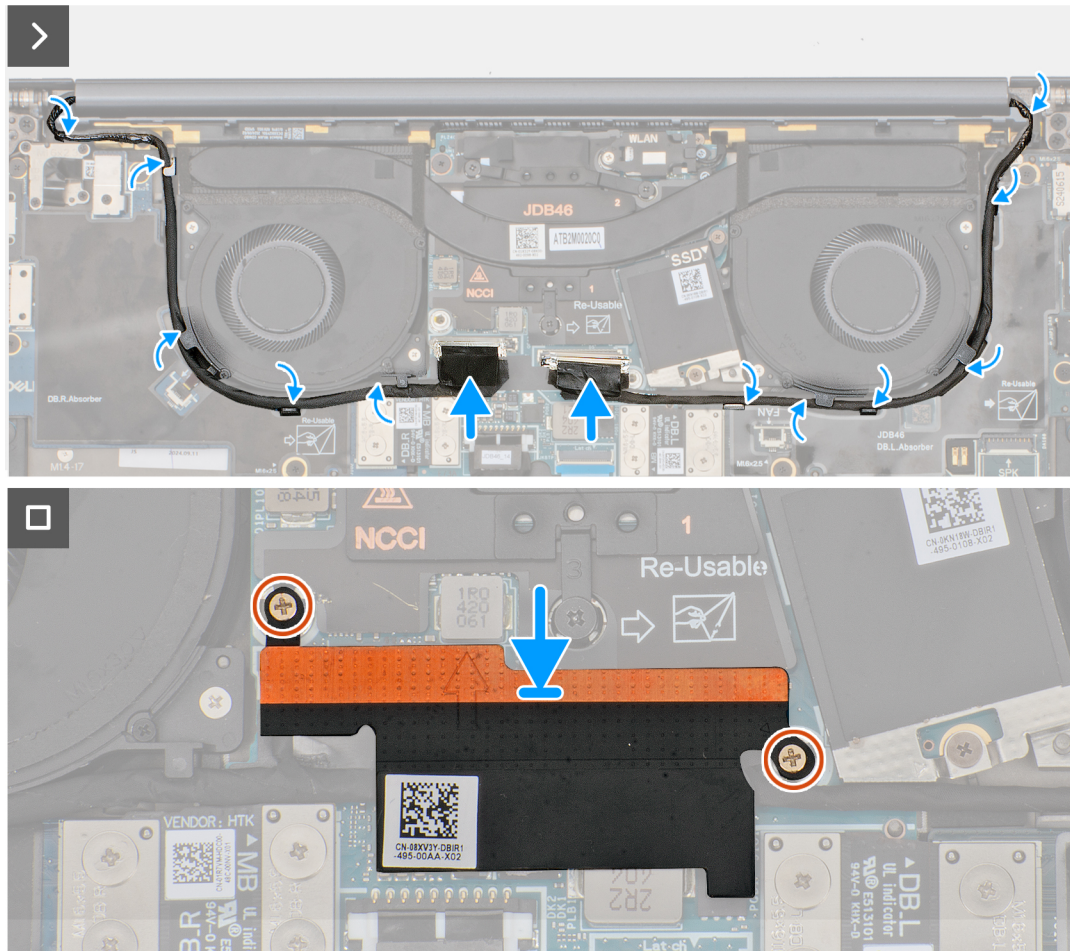
2x



6x
M2.5x5



Afbeelding 62. Installing the display assembly



Afbeelding 63. Connecting the display and camera cables

Stappen

1. Place the display assembly on a flat surface.
2. Slide the base assembly at an angle and gently press down on then hinges to align the screw holes on the display hinges with screw holes on the system board.
3. Replace the six screws (M2.5x5) that secure the display assembly on the palm-rest and keyboard assembly.
4. Route the display cable and camera cable from the routing channels on the bottom side of the fans and the top side of the system board.
5. Connect the display cable and camera cable to the system board.
6. Place and align the display-cable bracket on the system board.
7. Replace the two captive screws that secure the display-cable bracket on the system board.

Vervolgstappen

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Systeemkaart

Removing the system board

WAARSCHUWING: The information in this section is intended for authorized service technicians only.

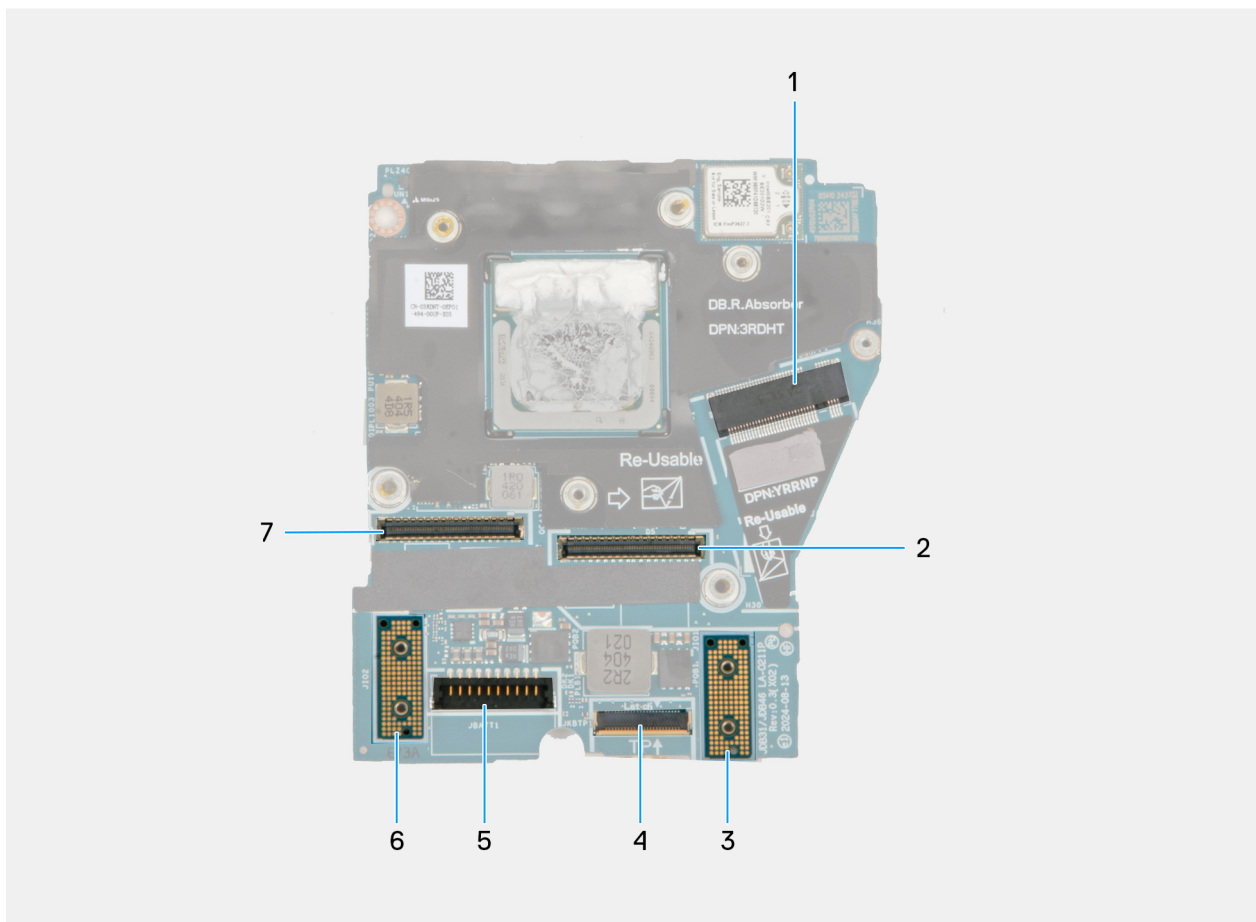
Vereisten

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [M.2 2230 solid state drive](#).
4. Remove the [battery](#).
5. Remove the [heat sink](#).

OPMERKING: The system board can be removed and installed along with the heat sink. It simplifies the removal and installation procedure and prevents damage to the thermal bond between the system board and heat sink.

Over deze taak

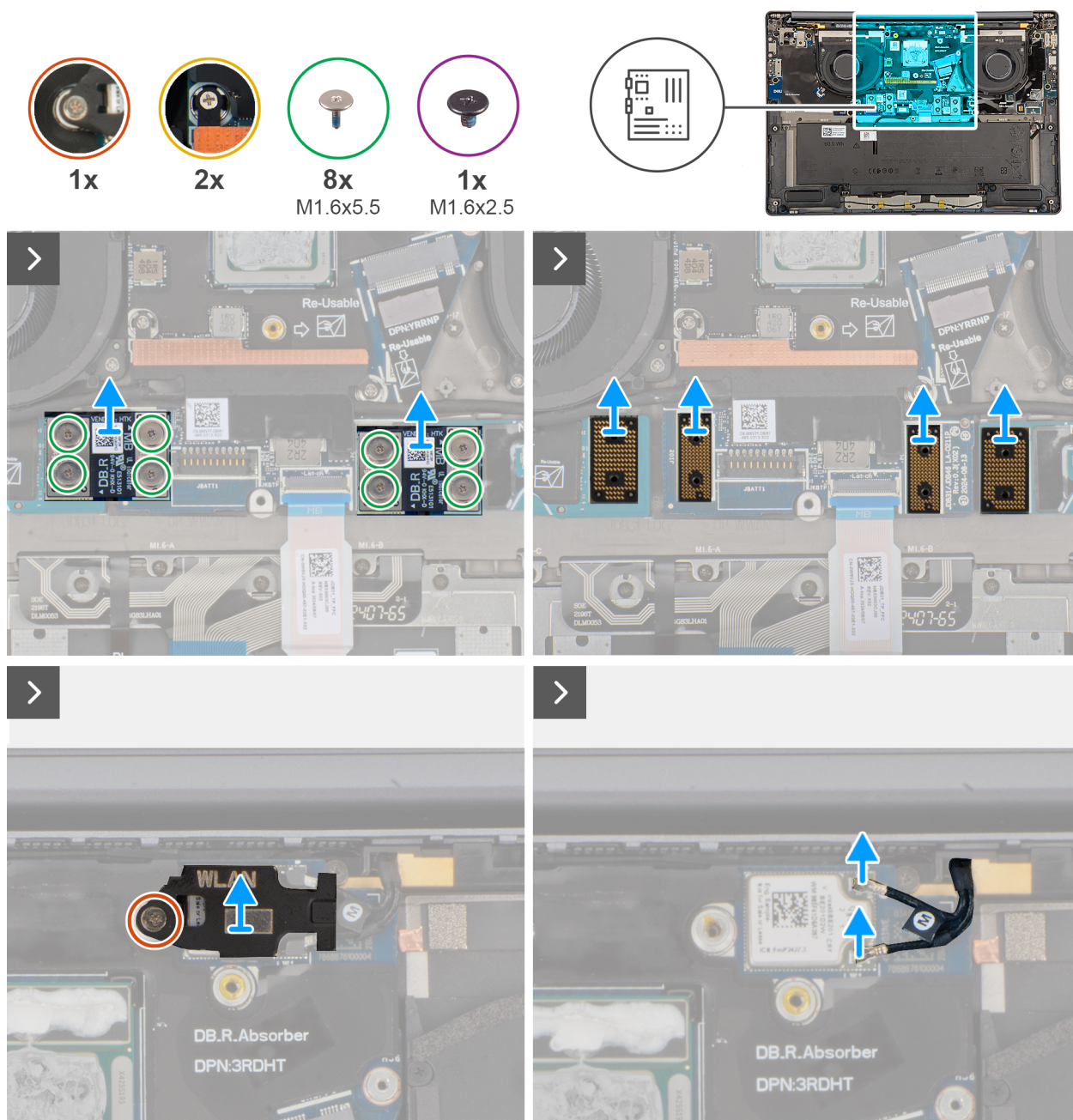
The following image indicates the connectors on your system board.



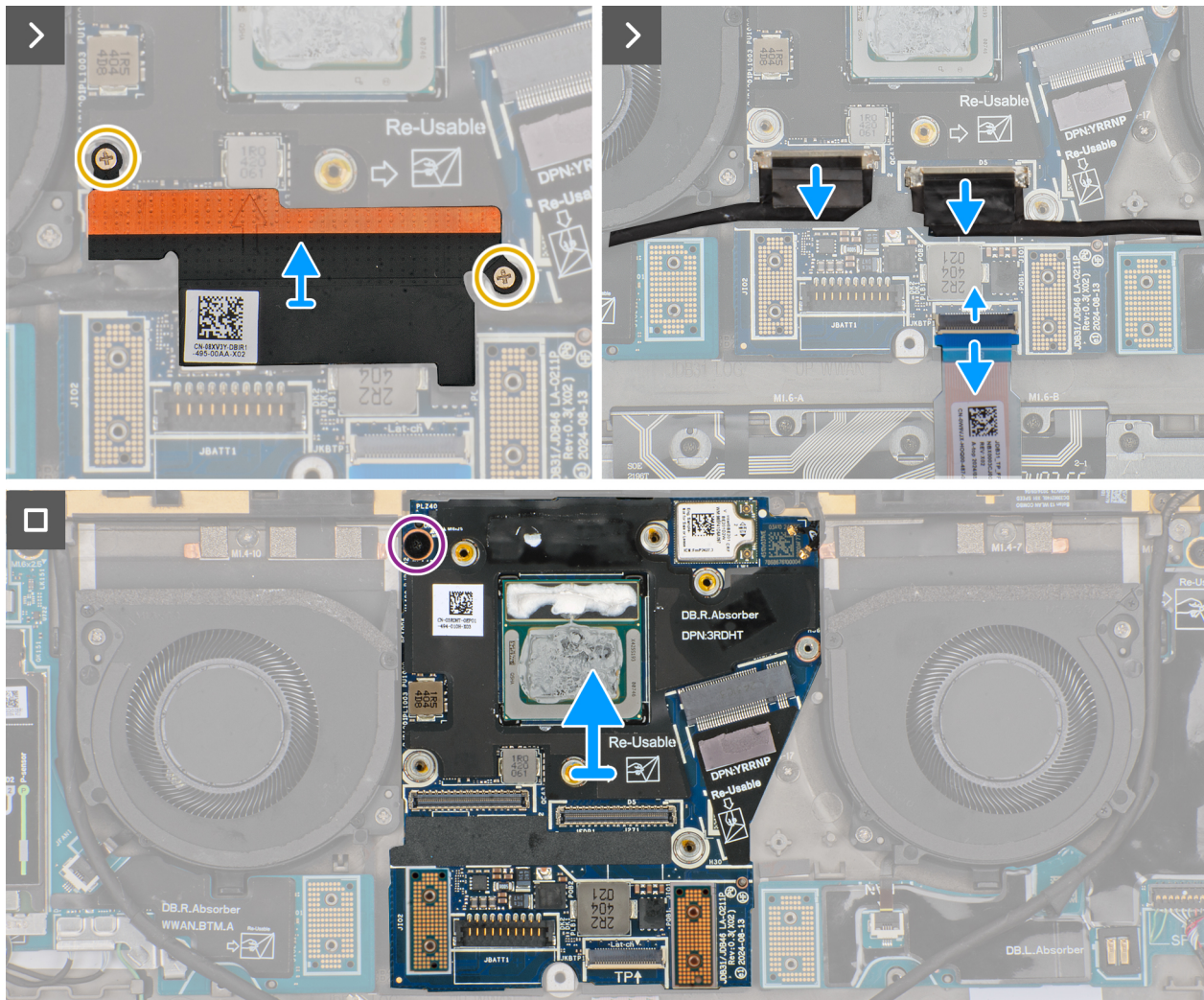
Afbeelding 64. System board callout

1. SSD slot connector
2. Display-cable connector
3. Left I/O-board connector
4. Touchpad-cable connector
5. Battery-cable connector
6. Right I/O-board connector
7. IR-camera cable connector

The following images indicate the location of the system board and provide a visual representation of the removal procedure.



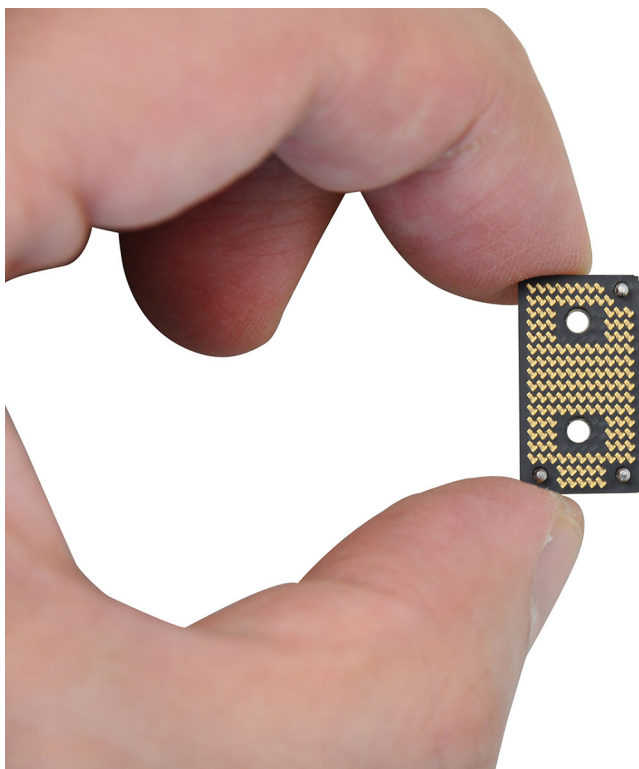
Afbeelding 65. Removing the system board



Afbeelding 66. Removing the system board

Stappen

1. Remove the eight screws (M1.6x5.5) that secure the right I/O-board and left I/O-board cable connectors to the system board.
 - OPMERKING:** When reinstalling the right I/O-board cable connectors, align the connector so that the side labeled 'MB' is connected to the system board, and the side labeled **DB-R** is connected to the right I/O-board.
 - OPMERKING:** When reinstalling the left I/O-board cable connectors, align the connector so that the side labeled 'MB' is connected to the system board, and the side labeled **DB-L** is connected to the left I/O-board.
2. Remove the right I/O-board and left I/O-board cable connectors from the system board.
3. Remove the interposer boards from the right I/O-board, left I/O-board, and system board.
 - WAARSCHUWING:** Technicians must remove the interposer board immediately after removing the I/O board cable connectors to prevent the board from falling out of the system during subsequent removal procedures.
 - OPMERKING:** The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Afbeelding 67. Interposed board handling

4. Loosen the single captive screw that secures the WLAN module bracket on the system board.
5. Lift and remove the WLAN module bracket from the system board.
6. Disconnect the WLAN antennas from the WLAN module.
7. Loosen the two captive screws that secure the display-cable bracket on the system board.
8. Remove the display-cable bracket from the system.
9. Disconnect the display cable, camera cable, and touchpad cable from the system board.

OPMERKING: To disconnect the touchpad cable, make sure to unlock the latch.

10. Remove the screw (M1.6x2.5) that secures the system board in place.
11. Lift and remove the system board from the computer.

OPMERKING: If replacing the system board, peel off the SSD thermal pad sticker and mylar and then transfer it over to the new system board.

Installing the system board

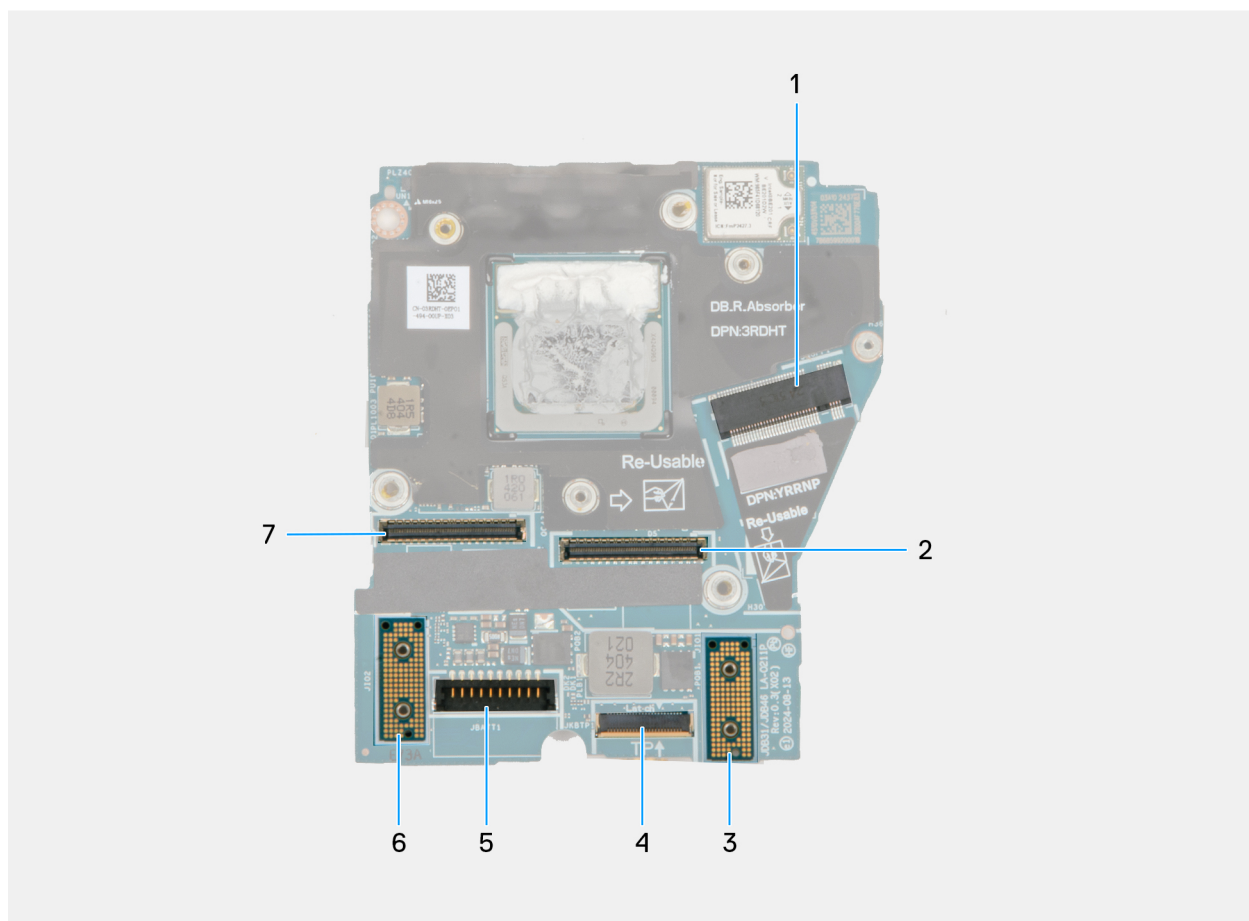
WAARSCHUWING: The information in this section is intended for authorized service technicians only.

Vereisten

Als u een onderdeel vervangt, dient u het bestaande onderdeel te verwijderen alvorens de installatieprocedure uit te voeren.

Over deze taak

The following image indicates the connectors on your system board.

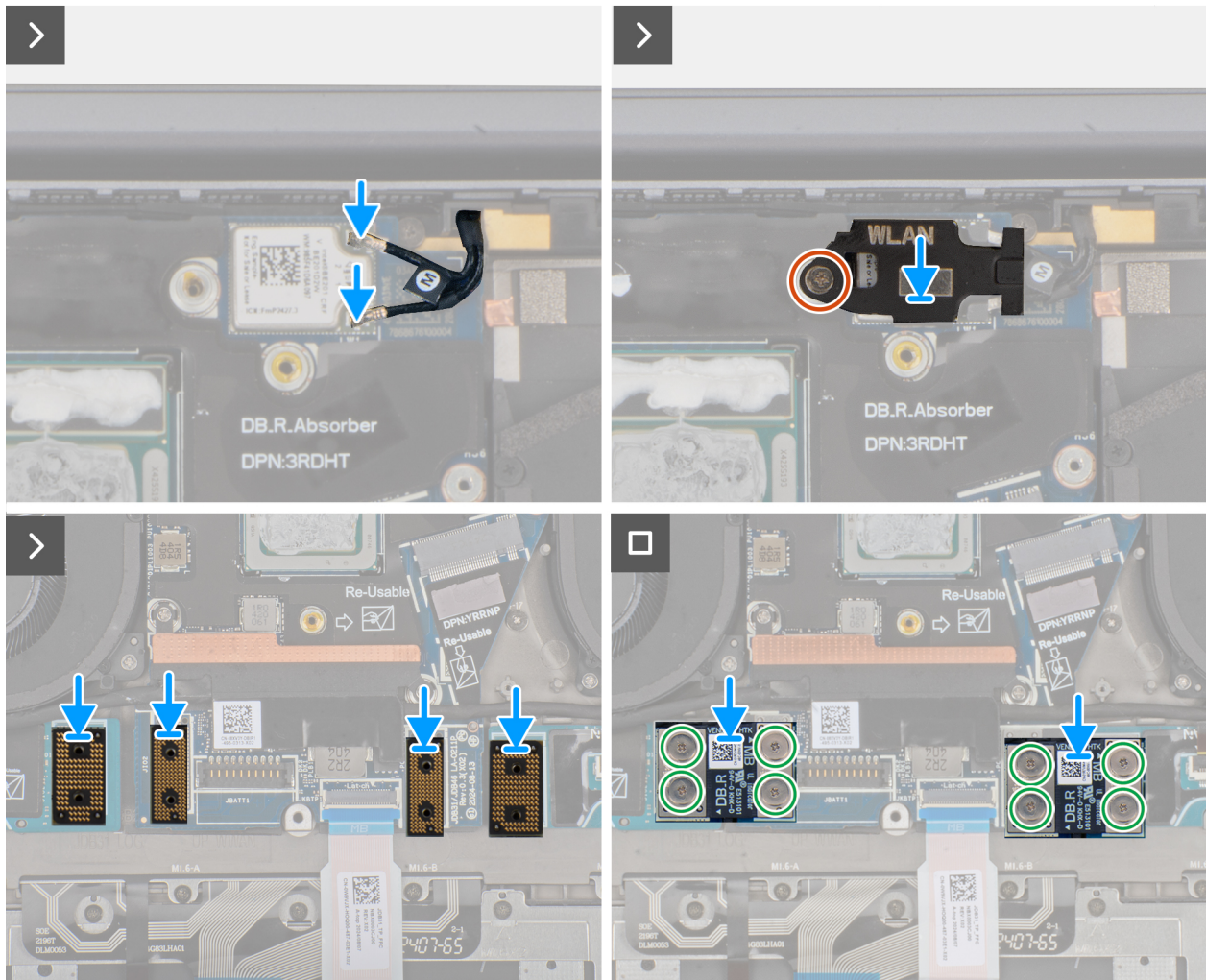


Afbeelding 68. System board callout

1. SSD slot connector
2. Display-cable connector
3. Left I/O-board connector
4. Touchpad-cable connector
5. Battery-cable connector
6. Right I/O-board connector
7. IR-camera cable connector

The following images indicate the location of the system board and provide a visual representation of the installation procedure.



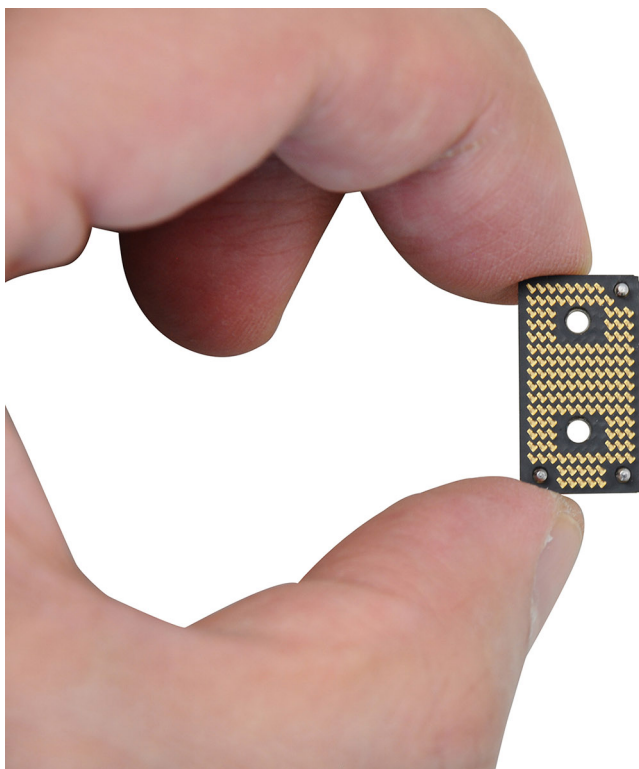


Afbeelding 70. Installing the system board

Stappen

1. Place the system board into the respective slot on the palm-rest and keyboard assembly.
2. Replace the screw (M1.6x2.5) that secures the system board to the palm-rest and keyboard assembly.
3. Connect the display cable, camera cable, and touchpad cable to the system board.
4. Align and place the display-cable bracket on the system board.
5. Tighten the two captive screws that secure the display-cable bracket on the system board.
6. Connect the WLAN antennas to the WLAN module.
7. Align and replace the WLAN-module bracket on the system board.
8. Tighten the single captive screw that secures the WLAN-module bracket on the system board.
9. Replace the interposer boards on the right I/O-board, left I/O-board, and system board.

OPMERKING: The pins on the interposer board are fragile. Avoid contact with the pins on the board, instead handle the board by lifting and holding from the edges or the sides.



Afbeelding 71. Holding the interpose board

10. Replace the eight screws (M1.6x5.5) that secure the right I/O-board and left I/O-board cable connectors on the system board.

OPMERKING: You must apply the XPG gel to the DRAMs of the CPU package.

Vervolgstappen

1. Install the [heat sink](#).
2. Install the [battery](#).
3. Install the [M.2 2230 solid state drive](#).
4. Install the [base cover](#).
5. Follow the procedure in [After working inside your computer](#).

Toetsenbord

Removing the keyboard assembly

WAARSCHUWING: The information in this section is intended for authorized service technicians only.

Vereisten

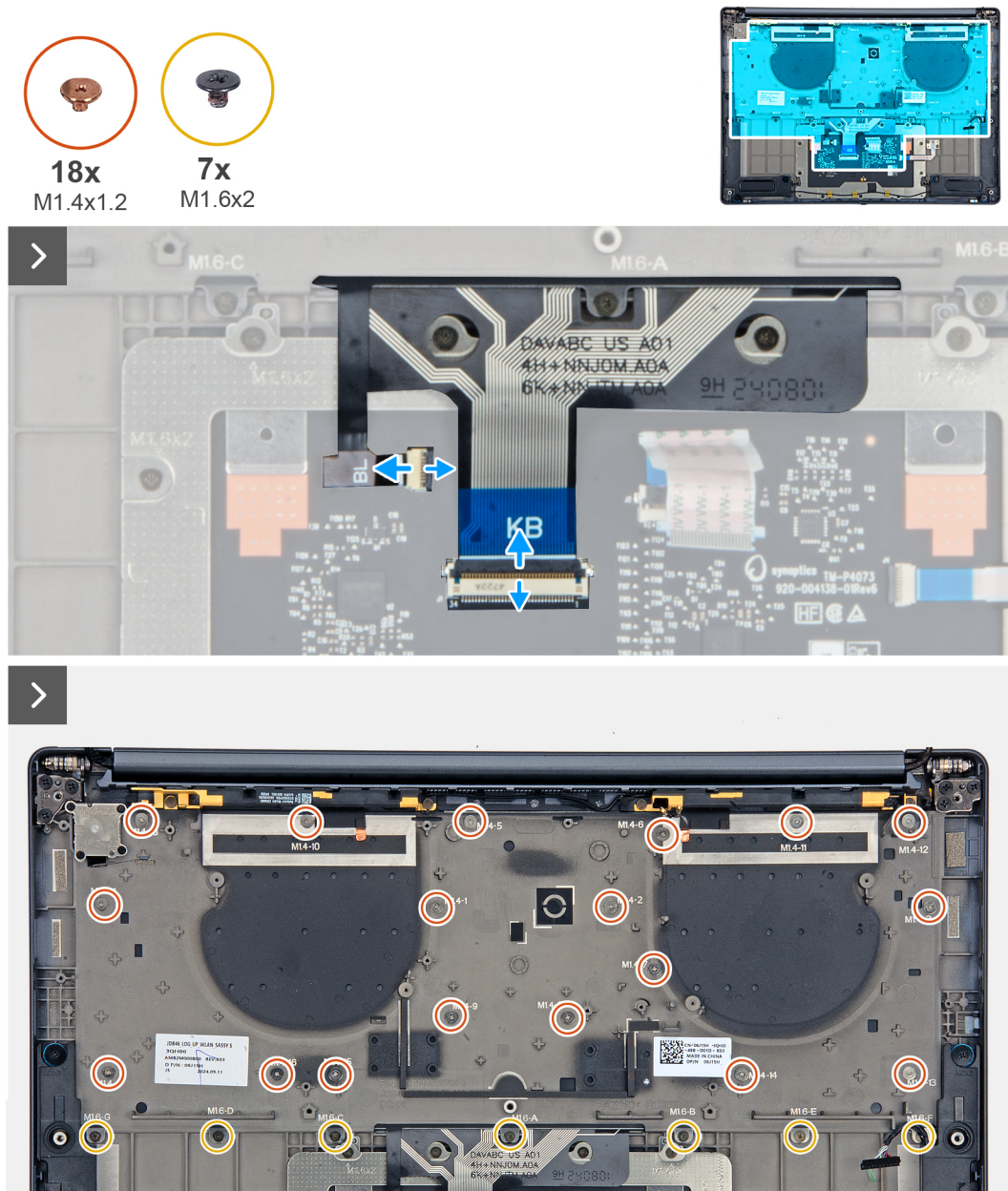
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [M.2 2230 solid state drive](#).
4. Remove the [nano-SIM card tray](#) and [nano-SIM card](#) (for computers shipped with WWAN card).
5. Remove the [WWAN card](#) (for the computer shipped with WWAN card).
6. Remove the [speaker](#) (for the computer shipped with WWAN card).
7. Remove the [speaker](#) (for the computer shipped without WWAN card).
8. Remove the [right I/O-board](#) (for the computer shipped without WWAN card).
9. Remove the [right I/O-board](#) (for the computer shipped with WWAN card).

10. Remove the [left I/O-board](#).
11. Remove the [left fan](#).
12. Remove the [right fan](#).
13. Remove the [power button](#).
14. Remove the [battery](#).
15. Remove the [heat sink](#).
16. Remove the [system board](#).

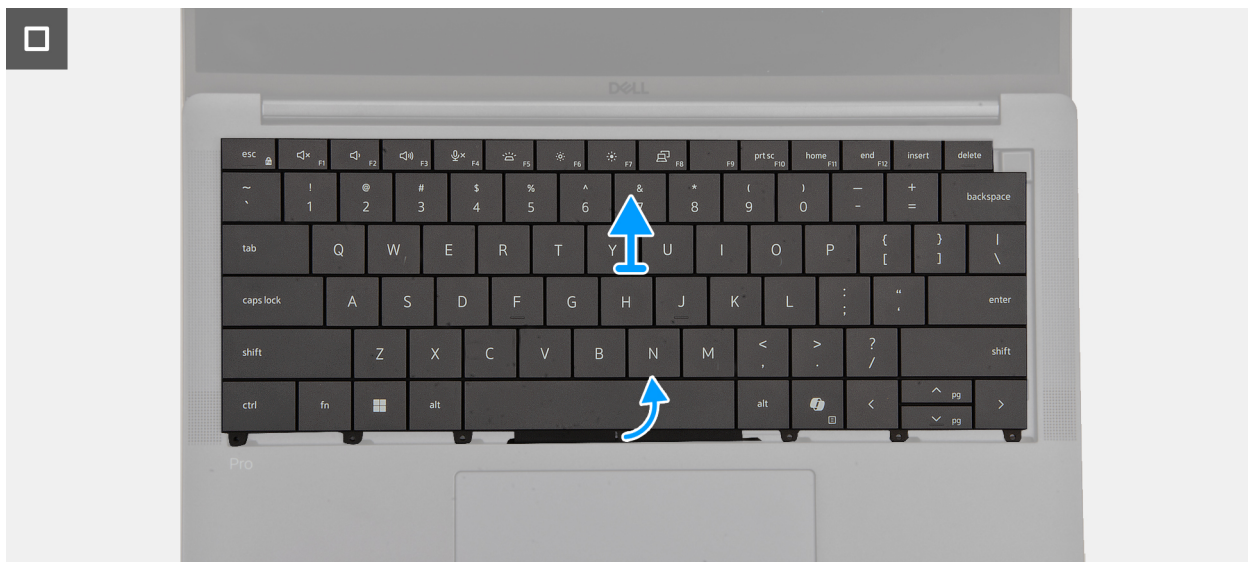
OPMERKING: When removing the system board to replace or access other parts, the system board can be removed and installed with the heat sink attached to simplify the procedure and preserve the thermal bond between the system board and heat sink.

Over deze taak

The following images indicate the location of the keyboard and provide a visual representation of the removal procedure.



Afbeelding 72. Removing the keyboard assembly



Afbeelding 73. Removing the keyboard assembly

Stappen

1. Unroute the WWAN antenna cable from the keyboard bracket.
2. Disconnect the keyboard cable and keyboard-backlight cable from the touchpad module.
3. Remove the eighteen screws (M1.4x1.2) and seven screws (M1.6x2) that secure the keyboard assembly to the computer.
4. Lift the keyboard to remove it from the computer.

Installing the keyboard assembly

WAARSCHUWING: The information in this section is intended for authorized service technicians only.

Vereisten

Als u een onderdeel vervangt, dient u het bestaande onderdeel te verwijderen alvorens de installatieprocedure uit te voeren.

Over deze taak

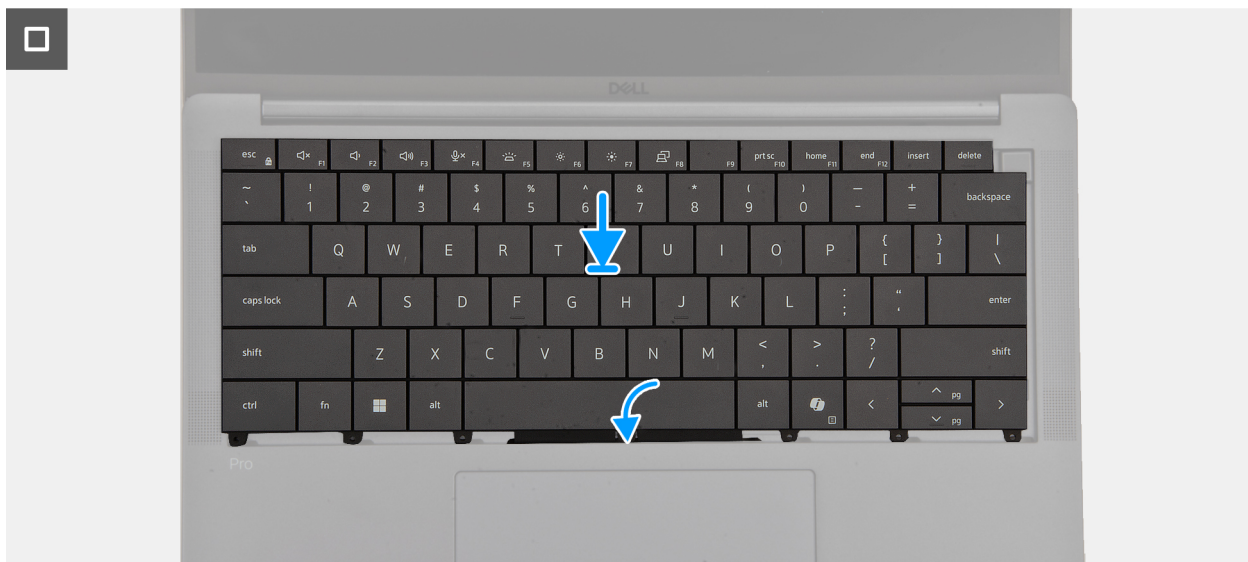
The following images indicate the location of the keyboard and provide a visual representation of the installation procedure.



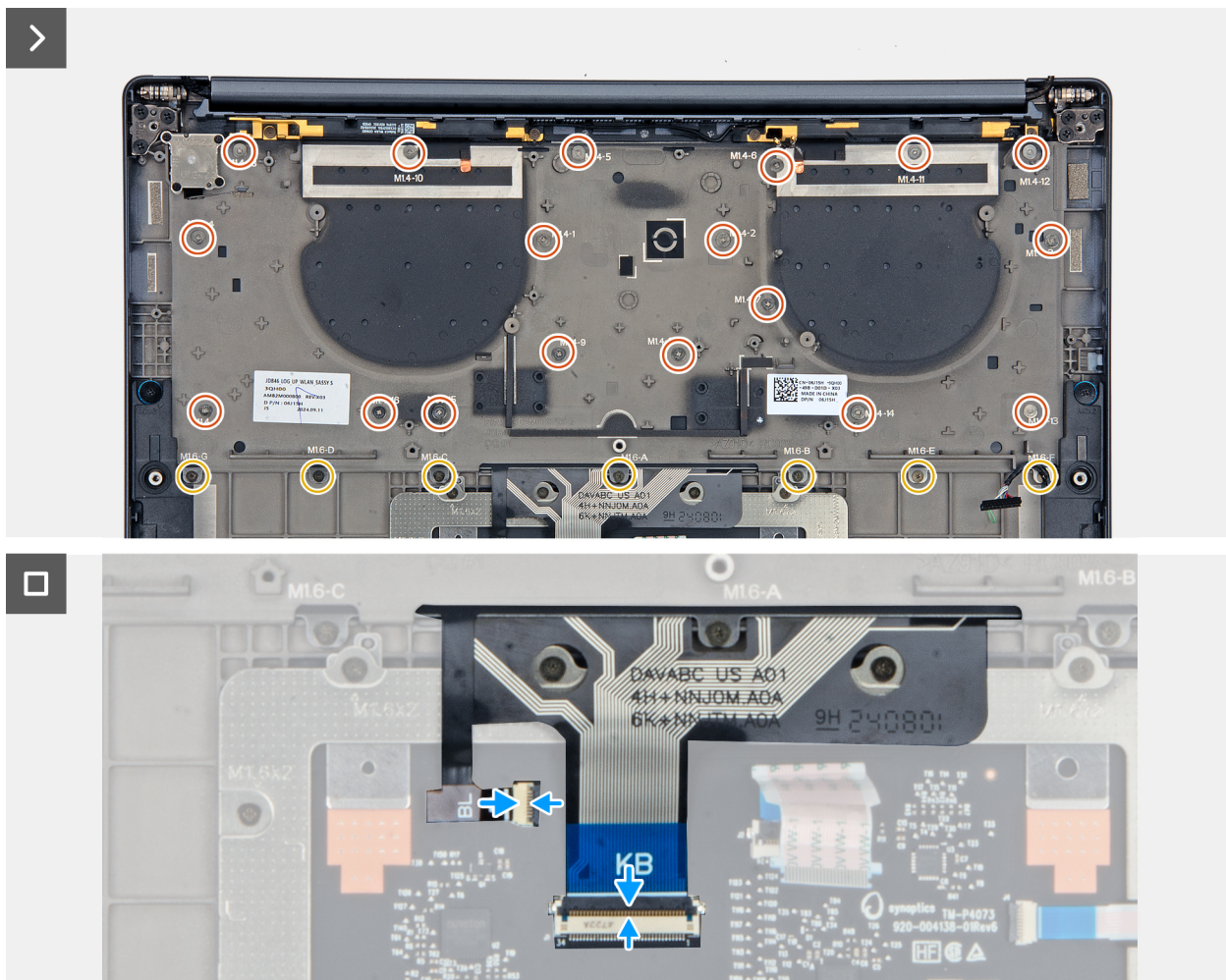
18x
M1.4x1.2



7x
M1.6x2



Afbeelding 74. Installing the keyboard assembly



Afbeelding 75. Installing the keyboard assembly

Stappen

1. Align the screw holes on the keyboard to the screw holes on the keyboard support plate and place the keyboard on the keyboard support plate.
2. Replace the eighteen screws (M1.4x1.2) and seven screws (M1.6x2) that secure the keyboard assembly to the system.
3. Connect the keyboard cable and keyboard-backlight cable from the touchpad module.

Vervolgstappen

1. Install the [system board](#).
2. Install the [heat sink](#).
3. Install the [battery](#).
4. Install the [power button](#).
5. Install the [left fan](#).
6. Install the [right fan](#).
7. Install the [left I/O-board](#).
8. Install the [right I/O-board](#) (for the computer shipped with WWAN card).
9. Install the [right I/O-board](#) (for the computer shipped without WWAN card).
10. Install the [speaker](#) (for the computer shipped with WWAN card).
11. Install the [speaker](#) (for the computer shipped without WWAN card).
12. Install the [WWAN card](#) (for the computer shipped with WWAN card).
13. Install the [nano-SIM card](#) and [nano-SIM card tray](#) (for the computer shipped with WWAN card).
14. Install the [M.2 2230 solid state drive](#).
15. Install the [base cover](#).
16. Follow the procedure in [After working inside your computer](#).

Palmsteuneenheid

Removing the palm-rest assembly

 **WAARSCHUWING:** The information in this section is intended for authorized service technicians only.

Vereisten

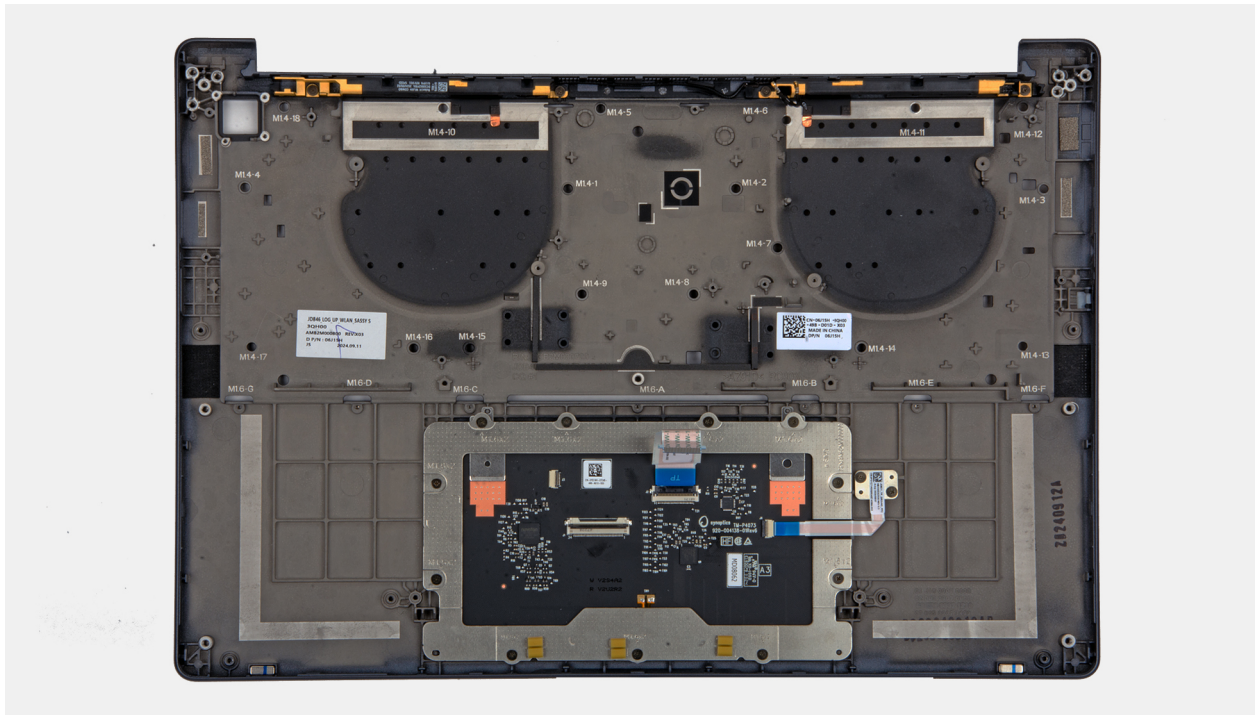
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [M.2 2230 solid-state drive](#).
4. Remove the [nano-SIM card tray](#) and [nano-SIM card](#) (for the computer shipped with WWAN card).
5. Remove the [WWAN card](#) (for the computer shipped with WWAN card).
6. Remove the [speaker](#) (for the computer shipped with WWAN card).
7. Remove the [speaker](#) (for the computer shipped without WWAN card).
8. Remove the [right I/O-board](#) (for the computer shipped without WWAN card).
9. Remove the [right I/O-board](#) (for the computer shipped with WWAN card).
10. Remove the [left I/O-board](#).
11. Remove the [power button](#).
12. Remove the [battery](#).
13. Remove the [heat sink](#).
14. Remove the [system board](#).
15. Remove the [display assembly](#).
16. Remove the [keyboard](#).

 **OPMERKING:** When removing the system board to replace or access other parts, the system board can be removed and installed with the heat sink attached to simplify the procedure and preserve the thermal bond between the system board and heat sink.

Over deze taak

 **OPMERKING:** The palm-rest assembly cannot be further disassembled once all the pre-removal parts procedures are completed. If the keyboard is malfunctioning and is required to be replaced, replace the entire palm-rest assembly.

The image below shows the palm-rest assembly after the pre-removal parts procedures have been performed for any palm-rest assembly replacement.



Afbeelding 76. Palm-rest

Stappen

After performing the pre-requisites, you are left with the palm-rest assembly.

Installing the palm-rest assembly

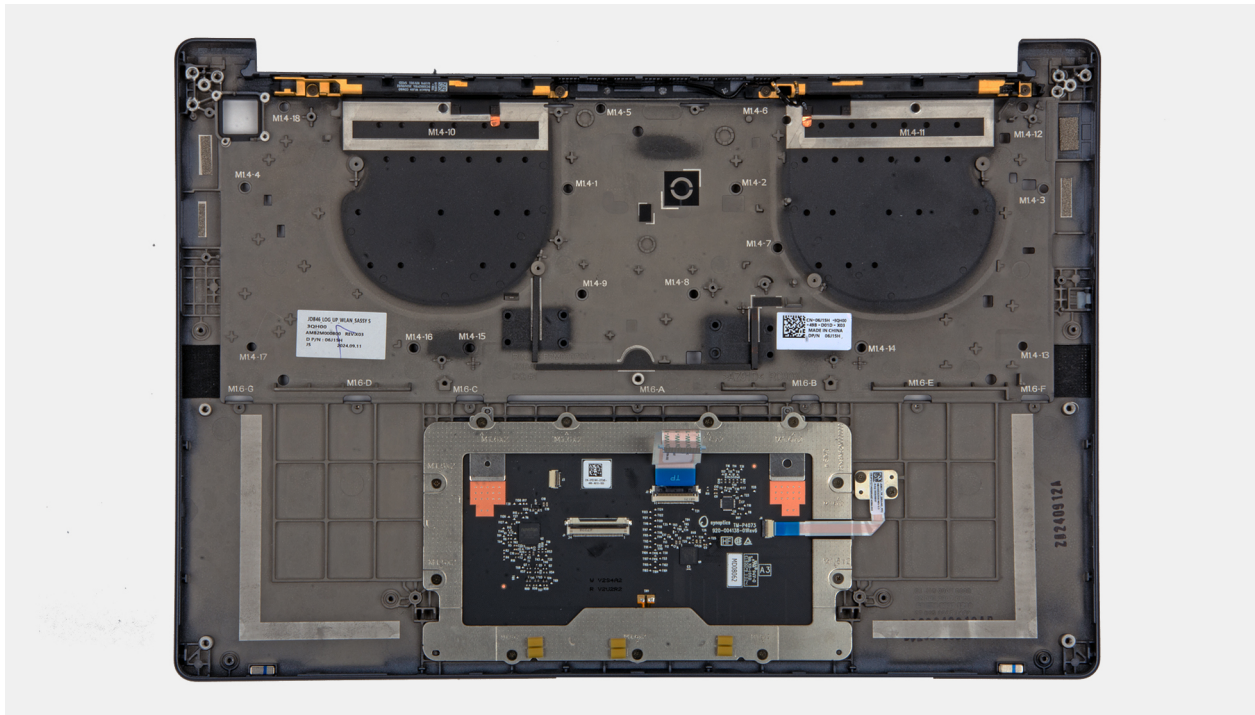
WAARSCHUWING: The information in this section is intended for authorized service technicians only.

Vereisten

Als u een onderdeel vervangt, dient u het bestaande onderdeel te verwijderen alvorens de installatieprocedure uit te voeren.

Over deze taak

The following image indicates the location of the palm-rest assembly and provides a visual representation of the installation procedure.



Afbeelding 77. Palm-rest

Stappen

Place the palm-rest assembly on a flat surface and perform the post-requisites to install the palm-rest assembly.

Vervolgstappen

1. Install the [keyboard](#).
2. Install the [display assembly](#).
3. Install the [system board](#).
4. Install the [heat sink](#).
5. Install the [battery](#).
6. Install the [power button](#).
7. Install the [left I/O-board](#).
8. Install the [right I/O-board](#) (for the computer shipped with WWAN card).
9. Install the [right I/O-board](#) (for the computer shipped without WWAN card).
10. Install the [speaker](#) (for the computer shipped with WWAN card)..
11. Install the [speaker](#) (for the computer shipped without WWAN card).
12. Install the [WWAN card](#) (for the computer shipped with WWAN card).
13. Install the [nano-SIM card](#) and [nano-SIM card tray](#) (for the computer shipped with WWAN card).
14. Install the [M.2 2230 solid-state drive](#).
15. Install the [base cover](#).
16. Follow the procedure in [After working inside your computer](#).

Software

In dit hoofdstuk worden de ondersteunde besturingssystemen beschreven. Bovendien vindt u hier instructies voor de installatie van stuurprogramma's.

Besturingssysteem

Uw Dell Pro 14 Premium PA14250 ondersteunt de volgende besturingssystemen:

- Windows 11 24H2
- Windows 11 23H2
- Windows 10 22H2
- Ubuntu Linux 24.04

 **OPMERKING:** Windows 10 22H2 is only for custom configured computers downgraded by end users from Windows 11. Windows 10 22H2 downgraded installations are supported by customer internal IT and is subjected to the Microsoft Windows 10 End of Support plan.

Drivers en downloads

Bij probleemoplossing met drivers of het downloaden of installeren hiervan is het raadzaam om het Dell knowledge base-artikel [000123347](#) met veelgestelde vragen over drivers en downloads te lezen.

BIOS-instellingen

OPMERKING: Afhankelijk van de computer en de geïnstalleerde apparaten kunnen de onderdelen die in dit gedeelte worden vermeld wel of niet worden weergegeven.

WAARSCHUWING: Door bepaalde wijzigingen is het mogelijk dat de computer niet goed meer werkt. Voordat u de instellingen in de BIOS-installatie wijzigt, is het raadzaam om de oorspronkelijke instellingen voor later te noteren.

Gebruik de BIOS-installatie voor de volgende doeleinden:

- Informatie krijgen over de hardware in uw computer, zoals de hoeveelheid RAM, de capaciteit van het storageapparaat.
- Systeemconfiguratiedata wijzigen
- Een door de gebruiker te selecteren optie instellen of wijzigen, zoals het gebruikerswachtwoord, het type storageapparaat dat is geïnstalleerd, het in- of uitschakelen van basisapparaten, enz.

Entering BIOS Setup program

Turn on or restart your computer and press F2 immediately.

Navigatietoetsen

OPMERKING: Voor de meeste BIOS Setup-opties worden de door u aangebrachte wijzigingen vastgelegd, maar worden ze pas van kracht nadat u de computer opnieuw hebt opgestart.

Tabel 32. Navigatietoetsen

Toetsen	Navigatie
Pijl Omhoog	Gaat naar het vorige veld.
Pijl Omlaag	Gaat naar het volgende veld.
Enter	Hiermee kunt u een waarde in het geselecteerde veld invullen (mits van toepassing) of de koppeling in het veld volgen.
Spatiebalk	Vergroot of verkleint een vervolgkeuzelijst, mits van toepassing.
Tabblad	Gaat naar het focusveld.
Esc	Gaat naar de vorige pagina totdat het hoofdscherm wordt weergegeven. Als u in het hoofdbeeldscherm op Esc drukt, wordt een bericht weergegeven met de prompt om de niet-opgeslagen wijzigingen op te slaan en de computer opnieuw te starten.

Eenmalig F12-opstartmenu

Als u naar het eenmalige opstartmenu wilt gaan, start u de computer (opnieuw) op en drukt u meteen op F12.

OPMERKING: Als u het eenmalige opstartmenu niet kunt openen, herhaalt u de bovenstaande actie.

In het eenmalige opstartmenu staan de apparaten waar het systeem vanaf kan opstarten en ziet u ook de optie om diagnostiek te starten. De opties van het opstartmenu zijn:

- Verwijderbare schijf (mits beschikbaar)
- STXXXX-schijf (indien beschikbaar)

 **OPMERKING:** XXX staat voor het nummer van de SATA-schijf.

- Optisch station (mits beschikbaar)
- SATA-harde schijf (indien beschikbaar)
- Diagnostiek

Het eenmalige opstartmenu geeft ook de optie weer om toegang te krijgen tot BIOS Setup.

View Advanced Setup options

Over deze taak

Some BIOS Setup options are only visible by enabling **Advanced Setup** mode, which is disabled by default.

 **OPMERKING:** BIOS Setup options, including **Advanced Setup** options, are described in [BIOS setup options](#).

To enable Advanced Setup:

Stappen

1. Enter BIOS Setup.
The Overview menu appears.
2. Click the **Advanced Setup** option to move it to the **ON** mode.
Advanced BIOS Setup options are displayed.

View Service options

Over deze taak

Service options are hidden by default and only visible by entering a hotkey command.

 **OPMERKING:** Service options are described in [BIOS Setup options](#).

To view Service options:

Stappen

1. Enter BIOS Setup.
The Overview menu appears.
2. Enter the hotkey combination **Ctrl + Alt + s** to view the **Service** options.
Service options are displayed.

System Setup options

 **OPMERKING:** For most of the System Setup options, changes that you make are recorded but do not take effect until you restart the computer.

 **OPMERKING:** Depending on your computer and its installed devices, the items that are listed in this section may differ.

Tabel 33. System Setup options—Overview menu

Overview	
Dell Pro 14 Premium PA14250	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.

Tabel 33. System Setup options—Overview menu (vervolg)

Overview	
Manufacture Date	Displays the manufacture date of the computer.
Ownership Date	Displays the ownership date of the computer.
Express Service Code	Displays the Express Service Code of the computer.
Ownership Tag	Displays the Ownership Tag of the computer.
Signed Firmware Update	Displays whether the Signed Firmware Update is enabled on your computer. By default, the Signed Firmware Update option is enabled.  OPMERKING: To view this option, enable Service options as described in View Service options.
BATTERY Information	
Primary	Displays the primary battery of the computer.
Battery Level	Displays the battery level of the computer.
Battery State	Displays the battery state of the computer.
Health	Displays the battery health of the computer.
AC Adapter	Displays whether an AC adapter is connected. If connected, displays the type of AC adapter that is connected.
Battery Life Type	Displays the battery life type.
PROCESSOR Information	
Processor Type	Displays the processor type.
Maximum Clock Speed	Displays the maximum processor clock speed.
Minimum Clock Speed	Displays the minimum processor clock speed.  OPMERKING: To view this option, enable Service options as described in View Service options.
Current Clock Speed	Displays the current processor clock speed.  OPMERKING: To view this option, enable Service options as described in View Service options.
Core Count	Displays the number of cores on the processor.
Processor ID	Displays the processor identification code.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Processor L2 Cache	Displays the processor L2 cache size.
Processor L3 Cache	Displays the processor L3 cache size.
Microcode Version	Displays the microcode version.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Intel Hyper-Threading Capable	Displays whether the processor is Hyper-Threading (HT) capable.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Intel vPro Technology	Displays whether the processor is Intel vPro Technology capable.
MEMORY Information	
Memory Installed	Displays the total memory installed on the computer.

Tabel 33. System Setup options—Overview menu (vervolg)

Overview	
Memory Available	Displays the total memory available on the computer.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Memory Speed	Displays the memory speed.
Memory Channel Mode	Displays single or dual channel mode.  OPMERKING: To view this option, enable Service options as described in View Service options .
Memory Technology	Displays the technology that is used for the memory.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
DEVICES Information	
Panel Type	Displays the type of display panel available on the computer.
Panel Revision	Displays the Panel Revision of the computer.
Video Controller	Displays the type of video controller available on the computer.
Video Memory	Displays the video memory information of the computer.
Wi-Fi Device	Displays the wireless device information of the computer.
Native Resolution	Displays the native resolution of the computer.
Video BIOS Version	Displays the video BIOS version of the computer.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Audio Controller	Displays the audio controller information of the computer.
Bluetooth Device	Displays the Bluetooth device information of the computer.
Pass Through MAC Address	Displays the MAC address of the video pass-through.
Cellular Device	Displays the Cellular Device that is used in the computer.

Tabel 34. System Setup options—Boot Configuration menu

Boot Configuration	
Boot Sequence	
Enable PXE Boot Priority	Enables or disables the PXE Boot Priority. By default, the PXE Boot Priority option is disabled.
Secure Boot	
Enable Secure Boot	Secure Boot is a method of guaranteeing the integrity of the boot path by performing additional validation of the operating system and PCI add-in cards. The computer stops booting to the operating system when a component is not authenticated during the boot process. Secure Boot can be enabled in BIOS setup or using management interfaces like Dell Command Configure, but can only be disabled from BIOS setup. Enables the computer to boot using only validated boot software. By default, this Enable Secure Boot option is disabled. For additional security, Dell Technologies recommends keeping the Secure Boot option enabled to ensure that the UEFI firmware validates the operating system during the boot process.  OPMERKING: To enable Secure Boot, the computer must be in UEFI boot mode and the Enable Legacy Option ROMs option must be turned off.
Enable Microsoft UEFI CA	When disabled, the UEFI CA is removed from the BIOS UEFI Secure Boot database.

Tabel 34. System Setup options—Boot Configuration menu (vervolg)

Boot Configuration	
	 WAARSCHUWING: If you disable Microsoft UEFI CA, the computer may not boot, computer graphics may not function, some devices may not function properly, and the computer could become unrecoverable. By default, the Enable Microsoft UEFI CA option is enabled. For additional security, Dell Technologies recommends keeping the Enable Microsoft UEFI CA option enabled to ensure the broadest compatibility with devices and operating systems.
Secure Boot Mode	Enables or disables the Secure Boot operation mode. By default, the Deployed Mode is selected. Deployed Mode should be selected for normal operation of Secure Boot.
Expert Key Management	
Enable Custom Mode	Enables or disables the keys in the PK, KEK, db, and dbx security key databases to be modified. By default, the Enable Custom Mode option is disabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Custom Mode Key Management	Selects the custom values for expert key management. By default, the PK option is selected.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabel 35. System Setup options—Integrated Devices menu

Integrated Devices	
Date/Time	
Date	Sets the computer date in MM/DD/YYYY format. Changes to the date format take effect immediately.
Time	Sets the computer time in HH/MM/SS 24-hour format. You can select between a 12-hour or 24-hour clock. Changes to the time format take effect immediately.
Camera	
Enable Camera	Enables the camera. By default, the Enable Camera option is enabled.  OPMERKING: Depending on the configuration ordered, the camera setup option may not be available.
Audio	
Enable Audio	Enables all integrated audio controller. By default, all the options are enabled.
Enable Microphone	Enables the microphone. By default, the Enable Microphone option is enabled.  OPMERKING: Depending on the configuration ordered, the microphone setup option may not be available.
Enable Internal Speaker	Enables the internal speaker. By default, the Enable Internal Speaker option is enabled.

Tabel 35. System Setup options—Integrated Devices menu (vervolg)

Integrated Devices	
USB/Thunderbolt Configuration	
Enable USB Boot Support	Enables booting from USB mass storage devices that are connected to external USB ports. By default, the Enable USB Boot Support option is enabled.
Enable External USB Ports	Enables the external USB ports. By default, the Enable External USB Ports option is enabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable Thunderbolt Technology Support	
Enable Thunderbolt Technology Support	Enables the associated ports and adapters for Thunderbolt Technology support. By default, the Enable Thunderbolt Technology Support option is enabled.
Enable Thunderbolt Boot Support	
Enable Thunderbolt Boot Support	Enables the Thunderbolt adapter-peripheral device and USB devices that are connected to the Thunderbolt adapter to be used during BIOS Preboot. By default, the Enable Thunderbolt Boot Support option is disabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Disable USB4 PCIE Tunneling	
Disable USB4 PCIE Tunneling	Disables the USB4 PCIE Tunneling option. By default, the Disable USB4 PCIE Tunneling option is disabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Video/Power only on Type-C Ports	
Video/Power only on Type-C Ports	Enables or disables the Type-C port functionality to video or only power. By default, the Video/Power only on Type-C Ports option is disabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Type-C Dock	
Type-C Dock Override	Enables or disables to use connected Type-C Dell Dock to provide data stream with external USB ports disabled. When Type-C Dock override is enabled, the Video/Audio/LAN submenu is activated. By default, the Type-C Dock Override option is enabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Type-C Dock Audio	Enables or disables the usage of audio inputs and outputs from the connected Type-C Dell docking station. By default, the Type-C Dock Audio option is enabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Type-C Dock LAN	Enables or disables the usage of LAN on the external ports of the connected Type-C Dell docking station.

Tabel 35. System Setup options—Integrated Devices menu (vervolg)

Integrated Devices	
	By default, the Type-C Dock LAN option is enabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Miscellaneous Devices	
Enable Fingerprint Reader Device	Enables or disables the Fingerprint Reader Device option. By default, the Enable Fingerprint Reader Device option is enabled.
Unobtrusive Mode	Enables or disables the unobtrusive mode. When enabled, all system LEDs, LCD panel backlight and audio devices of the computer are turned off. By default, the Unobtrusive Mode option is disabled. OPMERKING: On computers with collaboration touchpad, the Collaboration Touchpad is disabled when the Unobtrusive Mode option is enabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabel 36. System Setup options—Storage menu

Storage	
SATA/NVMe Operation	
SATA/NVMe Operation	Sets the operating mode of the integrated SATA hard drive controller. By default, the AHCI/NVME option is selected. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Storage Interface	
Storage Interface	Displays the information of various onboard drives.
Port Enablement	Enables or disables the M.2 PCIe SSD option. By default, the M.2 PCIe SSD option is enabled.
Smart Reporting	
Enable Smart Reporting	Enables or disables the Smart reporting option. By default, the Smart Reporting option is disabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Drive Information	Displays the information of onboard drives.

Tabel 37. System Setup options—Display menu

Display	
Display Brightness	
Brightness on battery power	By default, the screen brightness is set to 50 when the computer is running on battery power. Set the screen brightness when the computer is running on battery power. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Brightness on AC power	By default, the screen brightness is set to 100 when the computer is running on AC power. Set the screen brightness when the computer is running on AC power.

Tabel 37. System Setup options—Display menu (vervolg)

Display	
	 OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Touchscreen	Enables or disables the touch screen option. By default, the Touchscreen option is enabled.  OPMERKING: Only available on computers with touch screen displays.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Full Screen Logo	Enables or disables the computer to display full screen logo, if the image matches screen resolution. By default, the Full Screen Logo option is disabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabel 38. System Setup options—Connection menu

Connection	
Wireless Device Enable	
WWAN/GPS	Enables or disables the internal WWAN device. By default, the WWAN/GPS option is enabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
WLAN	Enables or disables the internal WLAN device. By default, the WLAN option is enabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Bluetooth	Enables or disables the internal Bluetooth device. By default, the Bluetooth option is enabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable UEFI Network Stack	Enables or disables the UEFI Network Stack and controls the onboard LAN Controller. By default, the Enable UEFI Network Stack option is enabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Wireless Radio Control	
Control WLAN Radio	Enable to sense the connection of the computer to a wired network and then disables the selected WLAN radio. Upon disconnection from the wired network, the selected wireless radios are reenabled. By default, the Control WLAN Radio option is disabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Control WWAN Radio	Enables to sense the connection of the computer to a wired network and then disables the selected WWAN radios.

Tabel 38. System Setup options—Connection menu (vervolg)

Connection	
	By default, the Control WWAN Radio option is disabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable UEFI Bluetooth Stack	If enabled, UEFI Bluetooth protocols are installed and available, allowing pre-OS Bluetooth HID features. By default, the Enable UEFI Network Stack option is enabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
HTTP(s) Boot Feature	
HTTP(s) Boot	When enabled, supports HTTP(s) boot on the client BIOS, which offers wired or wireless and HTTP/HTTPS connection options.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
HTTP(s) Boot Modes	In Auto Mode, the boot URL is obtained from the DHCP response; the boot URL specifies the HTTP Boot Server and location of the Network Boot Program (NBP) file. In Manual mode, the user enters the URL in the text box, which must start with <code>http://</code> or <code>https://</code> and end with the NBP file name. By default, Auto Mode is selected.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Boot URL	Displays the URL of boot path.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
CA Certificate	Upload or delete the CA certificate.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabel 39. System Setup options—Power menu

Power	
Battery Configuration	Enables or disables the computer to run on battery during peak power usage hours. Use the table Custom Charge Start and Custom Charge Stop, to prevent AC power usage between certain times of each day. By default, the Adaptive option is selected. Battery settings are adaptively optimized based on your typical battery usage pattern.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Advanced Configuration	
Enable Advanced Battery Charge Configuration	Enables Advanced Battery Charge Configuration from the beginning of the day to a specified work period. When enabled, Advanced Battery Charged maximizes battery health while still supporting heavy use during the work day. By default, the Enable Advanced Battery Charge Configuration option is disabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Peak Shift	

Tabel 39. System Setup options—Power menu (vervolg)

Power	
Enable Peak Shift	Enables or disables the computer to run on battery during peak power usage hours. By default, the Enable Peak Shift option is disabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Type-C Connector Power	
Type-C Connector Power	Enables the maximum power that can be drawn from the Type-C connector. By default, the 7.5 Watts option is disabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
USB Powershare	
Enable USB PowerShare	Enables or disables the USB PowerShare on the computer. By default, the USB Powershare option is disabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Thermal Management	
	This setting allows for cooling of fan and processor heat management to adjust system performance, noise and temperature. By default, the Optimized option is selected. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
USB Wake Support	
Wake on Dell USB-C Dock	When enabled, connecting a Dell USB-C Dock wakes the computer from Standby, Hibernate, and Power Off. By default, the Wake on Dell USB-C Dock option is enabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Block Sleep	
	Enables or disables the computer from entering Sleep (S3) mode in the operating system. By default, the Block Sleep option is disabled. OPMERKING: When enabled, the computer does not go to Sleep, Intel Rapid Start is disabled automatically, and the operating system power option is blank if it was set to Sleep. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Lid Switch	
Enable Lid Switch	Enables or disables the Lid Switch. By default, the Enable Lid Switch option is enabled.
Power On Lid Open	When enabled, allows the computer to turn on from the off state whenever the lid is opened. By default, the Power On Lid Open option is enabled.
Intel Speed Shift Technology	
	Enables or disables the Intel Speed Shift Technology support. When enabled, the operating system selects the appropriate processor performance automatically. By default, the Intel Speed Shift Technology option is enabled.

Tabel 39. System Setup options—Power menu (vervolg)

Power	
	 OPMERKING: To view this option, enable Service options as described in View Service options .

Tabel 40. System Setup options—Security menu

Security	
TPM 2.0 Security	
TPM 2.0 Security On	Enables or disables the TPM. By default, the TPM 2.0 Security On option is enabled. For additional security, Dell Technologies recommends keeping TPM enabled to allow these security technologies to fully function.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Attestation Enable	The Attestation Enable option controls the endorsement hierarchy of TPM. Disabling the Attestation Enable option prevents TPM from being used to digitally sign certificates. By default, the Attestation Enable option is enabled. For additional security, Dell Technologies recommends keeping the Attestation Enable option enabled.  OPMERKING: When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Key Storage Enable	The Key Storage Enable option controls the storage hierarchy of TPM, which is used to store digital keys. Disabling the Key Storage Enable option restricts the ability of TPM to store owner's data. By default, the Key Storage Enable option is enabled. For additional security, Dell Technologies recommends keeping the Key Storage Enable option enabled.  OPMERKING: When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Clear	When enabled, the Clear option clears information that is stored in the TPM after exiting the system's BIOS. This option returns to the disabled state when the computer restarts. By default, the Clear option is disabled. Dell Technologies recommends enabling the Clear option only when TPM data is required to be cleared.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Physical Presence Interface (PPI) Bypass for Clear Commands	The PPI Bypass for Clear Commands option allows the operating system to manage certain aspects of PTT. When enabled, you are not prompted to confirm changes to the PTT configuration. By default, the PPI Bypass for Clear Commands option is disabled.

Tabel 40. System Setup options—Security menu (vervolg)

Security	
	For additional security, Dell Technologies recommends keeping the PPI Bypass for Clear Commands option disabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Intel Total Memory Encryption Multi-Key Total Memory Encryption (Up to 16Keys)	Enables or disables the processor's memory encryption feature. By default, the Multi-Key Total Memory Encryption (Up to 16Keys) option is disabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Chassis Intrusion	
Chassis Intrusion	Enables or disables the detection of chassis intrusion events. This feature notifies the user when the base cover has been removed from the computer. When set to Enabled, a notification is displayed on the next boot and the event is logged in the BIOS Events log. When set to Disabled, no notification is displayed and no event is logged in the BIOS Events log. When set to On-Silent, the event is logged in the BIOS Events log, but no notification is displayed. By default, the Chassis Intrusion Detection option is disabled. For additional security, Dell Technologies recommends keeping the Chassis Intrusion option enabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Block Boot Until Cleared	The Block Boot Until Clear option is enabled when Chassis Intrusion is enabled. When enabled, the computer does not boot until the chassis intrusion is cleared.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
SMM Security Mitigation	Enables or disables additional UEFI SMM Security Mitigation protections. This option uses the Windows SMM Security Mitigations Table (WSMT) to confirm to the operating system that security best practices have been implemented by the UEFI firmware. By default, the SMM Security Mitigation option is enabled. For additional security, Dell Technologies recommends keeping the SMM Security Mitigation option enabled unless you have a specific application which is not compatible.  OPMERKING: This feature may cause compatibility issues or loss of functionality with some legacy tools and applications.  OPMERKING: To view this option, enable Service options as described in View Service options.
Data Wipe on Next Boot	
Start Data Wipe	Data Wipe is a secure wipe operation that deletes information from a storage device.  WAARSCHUWING: The secure Data Wipe operation deletes information in a way that it cannot be reconstructed. Commands such as delete and format in the operating system may remove files from showing up in the file system. However, they can be reconstructed through forensic

Tabel 40. System Setup options—Security menu (vervolg)

Security	means as they are still represented on the physical media. Data Wipe prevents this reconstruction and the data can no longer be recovered. When enabled, the data wipe option provides prompts to wipe any storage devices that are connected to the computer on the next boot. By default, the Start Data Wipe option is disabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
HDD Security	This options controls the mechanism used by BIOS to block external Self Encrypting Drives (SED) management software to take ownership of the SED. The options are: • SED Block SID Authentication • PPI Bypass for SED Block SID Command Both the options are disabled by default.  OPMERKING: This option is applicable with laptops shipped with SED.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Absolute	Absolute Software provides various cyber security solutions, some requiring software preloaded on Dell computers and integrated into the BIOS. To use these features, you must enable the Absolute BIOS setting and contact Absolute for configuration and activation. By default, the Absolute option is enabled. For additional security, Dell Technologies recommends keeping the Absolute option enabled.  GEVAAR: The Permanently Disabled option can only be selected once. When Permanently Disabled is selected, Absolute Persistence cannot be reenabled. No further changes to the Enable/Disable states are allowed.  OPMERKING: The Enable/Disable options are unavailable while the computer is in the activated state.  OPMERKING: When the Absolute features are activated, the Absolute integration cannot be disabled from the BIOS Setup screen.
UEFI Boot Path Security	Enables or disables the computer to prompt the user to enter the Administrator password (if set) when booting to a UEFI boot path device from the F12 boot menu. By default, the Always Except Internal HDD option is enabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Authenticated BIOS Interface	Enable Authenticated BIOS Interface Enables or disables the authenticated BIOS Interface.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options. Clear Certificate Store Deletes the certificate.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options. Legacy Manageability Interface Access Helps to access the Legacy Manageability Interface.

Tabel 40. System Setup options—Security menu (vervolg)

Security	
Firmware Device Tamper Detection	 OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options. Allows you to control the firmware device tamper detection feature. This feature notifies the user when the firmware device is tampered. When enabled, a screen warning message is displayed on the computer and a tamper detection event is logged in the BIOS Events log. The computer fails to reboot until the event is cleared. By default, the Firmware Device Tamper Detection option is enabled. For additional security, Dell Technologies recommends keeping the Firmware Device Tamper Detection option enabled.
Clear Firmware Device Tamper Detection	Allows you to clear the events that are logged when tampering of firmware device is detected. By default, the Clear Firmware Device Tamper Detection option is disabled.
Pluton Security Processor	Enables or disables the utilization of the Pluton Security Processor by the operating system to provide security services such as Key Storage Provider functionality. By default, the Pluton Security Processor option is enabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabel 41. System Setup options—Passwords menu

Passwords	
Administrator Password	The Administrator Password prevents unauthorized access to the BIOS Setup options. Once the administrator password is set, the BIOS Setup options can only be modified after providing the correct password. The following rules and dependencies apply to the Administrator Password - • The administrator password cannot be set if system and/or internal storage passwords are previously set. • The administrator password can be used in place of the system and/or internal storage passwords. • When set, the administrator password must be provided during a firmware update. • Clearing the administrator password also clears the system password (if set). Dell Technologies recommends using an administrator password to prevent unauthorized changes to BIOS Setup options.
System Password	The System Password prevents the computer from booting to an operating system without entering the correct password. The following rules and dependencies apply when the System Password is used - • The computer shuts down when idle for approximately 10 minutes at the system password prompt. • The computer shuts down after three incorrect attempts to enter the system password. • The computer shuts down when the Esc key is pressed at the System Password prompt. • The system password is not prompted when the computer resumes from standby mode. Dell Technologies recommends using the system password in situations where it is likely that a computer may be lost or stolen.
Hard Drive Password	The hard drive password can be set to prevent unauthorized access of the data stored on the solid-state drive. The computer prompts for the hard drive password during boot in order to unlock the drive. A password-secured hard drive stays locked even when

Tabel 41. System Setup options—Passwords menu (vervolg)

Passwords	
 OPMERKING: On some computers, the M.2 PCIe SSD-0 Password option is shown.	removed from the computer or placed into another computer. It prevents an attacker from accessing data on the drive without authorization. The following rules and dependencies apply when the Hard Drive Password or M.2 PCIe SSD-0 Password option is used. • The hard drive password option cannot be accessed when the hard drive is disabled in the BIOS Setup. • The computer shuts down when idle for approximately 10 minutes at the hard drive password prompt. • The computer shuts down after three incorrect attempts to enter the hard drive password and treats the hard drive as not available. • The hard drive does not accept password unlock attempts after five incorrect attempts to enter the hard drive password from the BIOS Setup. The hard drive password must be reset for the new password unlock attempts. • The computer treats the hard drive as not available when the Esc key is pressed at the hard drive password prompt. • The hard drive password is not prompted when the computer resumes from standby mode. When the hard drive is unlocked by the user before the computer goes into standby mode, it remains unlocked after the computer resumes from standby mode. • If the system and hard drive passwords are set to the same value, the hard drive unlocks after the correct system password is entered. Dell Technologies recommends using a hard drive password to protect unauthorized data access.
Password Configuration	The Password configuration page includes several options for changing the requirements of BIOS passwords. You can modify the minimum and maximum length of the passwords as well as require passwords to contain certain character classes (upper case, lower case, digit, special character). When the Lower Case Letter option is enabled, the password requires at least one lower case letter. When the Upper Case Letter option is enabled, the password requires at least one upper case letter. When the Digit option is enabled, the password requires at least one numeric digit. When the Special Character option is enabled, the password requires at least one special character from the set: !"#%&'()*+,-./:;<=>?@[\\]^_`{ }~. When setting Minimum Characters for password length, Dell Technologies recommends setting the minimum password length to at least eight characters.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Password Bypass	The Password Bypass option allows the computer to reboot from the operating system without entering the system or hard drive password. If the computer has already booted to the operating system, it is presumed that the user has already entered the correct system or hard drive password.  OPMERKING: This option does not remove the requirement to enter the password after shutting down. By default, the Password Bypass option is disabled. For additional security, Dell Technologies recommends keeping the Password Bypass option enabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Password Changes	

Tabel 41. System Setup options—Passwords menu (vervolg)

Passwords	
Allow Non-Admin Password Changes	The Allow Non-Admin Password Changes option in BIOS Setup allows an end user to set or change the system or hard drive passwords without entering the administrator password. This gives an administrator control over the BIOS settings but enables an end user to provide their own password. By default, the Allow Non-Admin Password Changes option is enabled. For additional security, Dell Technologies recommends keeping the Allow Non-Admin Password Changes option disabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Admin Setup Lockout	
Enable Admin Setup Lockout	The Admin Setup Lockout option prevents an end user from even viewing the BIOS Setup configuration without first entering the administrator password (if set). By default, the Enable Admin Setup Lockout option is disabled. For additional security, Dell Technologies recommends keeping the Admin Setup Lockout option disabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Master Password Lockout	
Enable Master Password Lockout	The Master Password Lockout option allows you to disable the Recovery Password feature. If the system, administrator, or hard drive password is forgotten, the computer becomes unusable.  OPMERKING: When the owner password is set, the Master Password Lockout option is not available.  OPMERKING: When an internal hard drive password is set, it must first be cleared before Master Password Lockout can be changed. By default, the Enable Master Password Lockout option is disabled. Dell Technologies does not recommend enabling the Master Password Lockout unless you have implemented your own password recovery system.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Allow Non-Admin PSID Revert	
Enable Allow Non-Admin PSID Revert	The Allow Non-Admin PSID Revert option allows a user to clear the hard drive password without entering the BIOS Admin Password. When an Admin Password is set, the ability to enter the PSID is protected by requiring authentication with the Admin Password. If this option is enabled, any user can clear the drive without entering the Admin Password. By default, the Enable Allow Non-Admin PSID Revert option is disabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabel 42. System Setup options—System Management menu

System Management	
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Creates a computer Asset Tag that an IT administrator can use to uniquely identify a particular computer.  OPMERKING: Once set in the BIOS, the Asset Tag cannot be changed.

Tabel 42. System Setup options—System Management menu (vervolg)

System Management	
Wake on AC Wake on LAN	Enables or disables the computer to turn on and go to boot when AC power is supplied to the computer. By default, the Wake on AC option is disabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options. Enables or disables the computer to turn on by a special LAN signal. By default, the Wake on LAN option is disabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Auto On Time	Enable to set the computer to turn on automatically every day or on a preselected date and time. This option can be configured only if the Auto On Time is set to Everyday, Weekdays, or Selected Days. By default, the Auto On Time option is disabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Intel AMT capability	Configure Intel Active Management Technology (AMT) options, which can be enabled, disabled, or restricted. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Set Ownership Date Diagnostics OS agent requests	Displays the date of the computer when it was powered on the first time. Enable or disable the option for applications running in the operating system to run with preboot diagnostics on subsequent boots. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Power-On-Self-Test Automatic Recovery	Enable or disable the automatic recovery of the computer from no power or no-POST failure by applying mitigation steps. By default, the Power-On-Self-Test Automatic Recovery option is enabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabel 43. System Setup options—Keyboard menu

Keyboard	
Fn Lock Options Fn Lock Options	Enables or disables the Fn Lock option. By default, the Fn Lock option is enabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Lock Mode	By default, the Lock Mode Secondary option is enabled. With this option, the F1-F12 keys scan the code for their secondary functions. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Keyboard Illumination	Configures the operating mode of the keyboard illumination feature.

Tabel 43. System Setup options—Keyboard menu (vervolg)

Keyboard	
	By default, the Dim option is selected. Enables the keyboard illumination feature at 100% brightness level.
Keyboard Backlight Timeout on AC	Sets the timeout value for the keyboard backlight when an AC adapter is connected to the computer. By default, the 10 seconds option is selected.
Keyboard Backlight Timeout on Battery	Sets the timeout value for the keyboard backlight when the computer is running only on the battery power. The keyboard backlight timeout value is only effective when the backlight is enabled. By default, the 10 seconds option is selected.
Device Configuration HotKey Access	Allows you to control whether you can access device configuration screens through hotkeys during system startup. By default, the Device Configuration HotKey Access option is enabled.  OPMERKING: This setting controls only the Intel RAID (CTRL+I), MEBX (CTRL+P), and LSI RAID (CTRL+C) Option ROMs. Other preboot Option ROMs, which support entry using a key sequence, are not affected by this setting.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .

Tabel 44. System Setup options—Pre-boot Behavior menu

Pre-boot Behavior	
Adapter Warnings	
Enable Adapter Warning	Enables the warning messages during boot when the adapters with less power capacity are detected. By default, the Enable Adapter Warning option is enabled.
Warnings and Errors	Enables or disables the action to be taken when a warning or error is encountered. By default, the Prompt on Warnings and Errors option is selected.  OPMERKING: Errors deemed critical to the operation of the computer hardware stop the functioning of the computer.
Extend BIOS POST Time	Sets the BIOS POST (Power-On Self-Test) load time. By default, the 0 seconds option is selected.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
MAC Address Pass-Through	Replaces the external NIC MAC address (in a supported dock or dongle) with the selected MAC address from the computer. By default, the System Unique MAC Address option is selected.
Sign of Life	
Early Logo Display	Displays the Logo Sign of Life. By default, the Early Logo Display option is enabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Collaboration Touchpad	Enables or disables the Collaboration Touchpad. By default, the Collaboration Touchpad option is enabled.

Tabel 44. System Setup options—Pre-boot Behavior menu (vervolg)

Pre-boot Behavior	
	 OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
Show Ownership Tag with Logo	Displays the ownership tag of the computer.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .

Tabel 45. System Setup options—Performance menu

Performance	
Multi-Core Support	
Active Multiple Performances Cores (P-Cores) Select	Allows to change the number of the CPU cores available to the OS. By default, the All Active option is enabled.  OPMERKING: To view this option, enable Service options as described in View Service options .
Active Multiple Efficient Cores (E-Cores) Select	Allows to change the number of the CPU E-cores available to the OS. By default, the All Active option is enabled.  OPMERKING: To view this option, enable Service options as described in View Service options .
Intel SpeedStep	
Enable Intel SpeedStep Technology	Enables the computer to dynamically adjust processor voltage and core frequency, decreasing average power consumption and heat production. By default, the Enable Intel SpeedStep Technology option is enabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .
C-State Control	
Enable C-State Control	Enables or disables the ability of the CPU to enter and exit low-power state. When disabled, it disables all C-states. When enabled, it enables all C-states that the chipset or platform allows. By default, the Enable C-State Control option is enabled.  OPMERKING: To view this option, enable Service options as described in View Service options .
Intel Turbo Boost Technology	
Enable Intel Turbo Boost Technology	Enables or disables the Intel TurboBoost mode of the processor. When enabled, the Intel TurboBoost driver increases the performance of the CPU or graphics processor. By default, the Enable Intel Turbo Boost Technology option is enabled.  OPMERKING: To view this option, enable Service options as described in View Service options .

Tabel 46. System Setup options—System Logs menu

System Logs	
BIOS Event Log	
Clear BIOS Event Log	Select the option to keep or clear BIOS events logs. By default, the Keep Log option is selected.

Tabel 46. System Setup options—System Logs menu (vervolg)

System Logs	
Thermal Event Log	
Clear Thermal Event Log	Select the option to keep or clear thermal events logs. By default, the Keep Log option is selected.
Power Event Log	
Clear Power Event Log	Select the option to keep or clear power events logs. By default, the Keep Log option is selected.

Tabel 47. System Setup options—Update, Recovery menu

Update, Recovery	
UEFI Capsule Firmware Updates	
Enable UEFI Capsule Firmware Updates	Enables or disables BIOS updates through UEFI capsule update packages. OPMERKING: Disabling this option blocks the BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS). By default, the Enable UEFI Capsule Firmware Updates option is enabled. OPMERKING: To view this option, enable Service options as described in View Service options.
BIOS Recovery from Hard Drive	
	Enables or disables the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB drive. By default, the BIOS Recovery from Hard Drive option is enabled. OPMERKING: BIOS Recovery from Hard Drive is not available for self-encrypting drives (SED). OPMERKING: BIOS recovery is designed to fix the main BIOS block and cannot work if the Boot Block is damaged. In addition, this feature cannot work in the event of EC corruption, ME corruption, or a hardware issue. The recovery image must exist on an unencrypted partition on the drive. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
BIOS Downgrade	
Allow BIOS Downgrade	Allows downgrading of the system firmware to previous revisions. By default, the Allow BIOS Downgrade option is enabled. OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
SupportAssist OS Recovery	
	Enables or disables the boot flow for SupportAssist OS Recovery tool if certain system errors occur. By default, the SupportAssist OS Recovery option is enabled.
BIOSConnect	
	Enables or disables cloud service operating system recovery if the main operating system fails to boot with the number of failures equal to or greater than the value specified by the Auto OS Recovery Threshold setup option and local service operating system does not boot or is not installed. By default, the BIOSConnect option is enabled.
Dell Auto OS Recovery Threshold	
	Allows the control of the automatic boot flow for the SupportAssist System Resolution Console and the Dell OS Recovery Tool. By default, the Dell Auto OS Recovery Threshold value is set to 2.

Tabel 48. System Setup options—Virtualization menu

Virtualization Support	
Intel Virtualization Technology	
Enable Intel Virtualization Technology (VT)	When enabled, the computer can run a Virtual Machine Monitor (VMM). By default, the Enable Intel Virtualization Technology (VT) option is enabled.  OPMERKING: To view this option, enable Service options as described in View Service options.
VT for Direct I/O	
Enable Intel VT for Direct I/O	When enabled, the computer can perform Virtualization Technology for Direct I/O (VT-d). VT-d is an Intel method that provides virtualization for memory map I/O. By default, the Enable Intel VT for Direct I/O option is enabled.  OPMERKING: To view this option, enable Service options as described in View Service options.
Intel Trusted Execution Technology (TXT)	Specifies whether a measured Virtual Machine Monitor (MVMM) can use the additional hardware capabilities provided by Intel Trusted Execution Technology. The following must be enabled in order to enable Intel TXT - • Trusted Platform Module (TPM) • Intel Hyper-Threading • All CPU cores (Multi-Core Support) • Intel Virtualization Technology • Intel VT for Direct I/O By default, the Intel Trusted Execution Technology (TXT) option is disabled.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
DMA Protection	
Enable Pre-Boot DMA Support	Allows you to control the Pre-Boot DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system.  OPMERKING: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the Enable Pre-Boot DMA Support option is enabled. For additional security, Dell Technologies recommends keeping the Enable Pre-Boot DMA Support option enabled.  OPMERKING: This option is provided only for compatibility purposes, since some older hardware is not DMA capable.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Enable OS Kernel DMA Support	Allows you to control the Kernel DMA protection for both internal and external ports. This option does not directly enable DMA protection in the operating system. For operating systems that support DMA protection, this setting indicates to the operating system that the BIOS supports the feature.  OPMERKING: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the Enable OS Kernel DMA Support option is enabled.  OPMERKING: This option is provided only for compatibility purposes, since some older hardware is not DMA capable.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabel 48. System Setup options—Virtualization menu (vervolg)

Virtualization Support	
Internal Port DMA Compatibility Mode	Allows you to control the boot compatibility for integrated PCIe peripherals by disabling PCIe DMA protection on internal PCIe ports. When enabled, BIOS will notify the operating system that the internal ports are not DMA capable. This option is to help with devices that have operating system DMA compatibility issues. This option does not directly enable DMA protection in the operating system.  OPMERKING: This option is not available when the virtualization setting for IOMMU is disabled (VT-d/AMD Vi). By default, the Internal Port DMA Compatibility Mode option is disabled.  OPMERKING: This option is provided only for compatibility purposes, as certain older hardware may not be DMA compliant.  OPMERKING: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Het BIOS updaten

Het BIOS updaten in Windows

Stappen

1. Ga naar de [website van Dell Support](#).
2. Ga naar **Uw product identificeren of support zoeken**. Voer in het vak de product-ID, het model, de serviceaanvraag of de beschrijving in die u zoekt en klik vervolgens op **Zoeken**.

 **OPMERKING:** Als u niet beschikt over de servicetag, gebruikt u SupportAssist om uw computer automatisch te identificeren. U kunt ook de product-id gebruiken of handmatig naar uw computermodel bladeren.
3. Klik op **Drivers en downloads**. Vouw **Drivers zoeken** uit.
4. Selecteer het besturingssysteem dat op uw computer is geïnstalleerd.
5. Selecteer in de vervolgkeuzelijst **Categorie BIOS**.
6. Selecteer de nieuwste versie van het BIOS en klik op **Downloaden** om het BIOS-bestand voor uw computer te downloaden.
7. Ga na het downloaden naar de map waar u het bestand met de BIOS-update hebt opgeslagen.
8. Dubbelklik op het pictogram van het BIOS-updatebestand en volg de instructies op het scherm.
Zie het Knowledge Base-artikel op de [website van Dell Support](#) voor meer informatie over het bijwerken van de systeem-BIOS.

Het BIOS bijwerken met behulp van het USB-station in Windows

Stappen

1. Ga naar de [website van Dell Support](#).
2. Ga naar **Uw product identificeren of support zoeken**. Voer in het vak de product-ID, het model, de serviceaanvraag of de beschrijving in die u zoekt en klik vervolgens op **Zoeken**.

 **OPMERKING:** Als u niet beschikt over de servicetag, gebruikt u de functie SupportAssist om uw computer automatisch te identificeren. U kunt ook de product-id gebruiken of handmatig naar uw computermodel bladeren.
3. Klik op **Drivers en downloads**. Vouw **Drivers zoeken** uit.
4. Selecteer het besturingssysteem dat op uw computer is geïnstalleerd.
5. Selecteer in de vervolgkeuzelijst **Categorie BIOS**.
6. Selecteer de nieuwste versie van het BIOS en klik op **Downloaden** om het BIOS-bestand voor uw computer te downloaden.
7. Maak een opstartbaar USB-station. U kunt meer informatie vinden in het Knowledge Base-artikel op de [website van Dell Support](#).

8. Kopieer het bestand met het BIOS Setup-programma naar het opstartbare USB-station.
9. Sluit het opstartbare USB-station aan op de computer waarop de BIOS-update moet worden geïnstalleerd.
10. Start de computer opnieuw op en druk op **F12**.
11. Selecteer het USB-station in het **eenmalige opstartmenu**.
12. Typ de bestandsnaam van het BIOS Setup-programma en druk op **Enter**.
Het **hulpprogramma voor BIOS-update** wordt weergegeven.
13. Volg de instructies op het scherm om de BIOS-update te voltooien.

Het BIOS bijwerken in Linux en Ubuntu

Zie het Knowledge Base-artikel [000131486](#) op de [supportwebsite van Dell](#) voor informatie over het updaten van het systeem-BIOS op een computer die is geïnstalleerd met Linux of Ubuntu.

Het BIOS updaten vanuit het eenmalige opstartmenu

U kunt het BIOS-flashupdatebestand van Windows uitvoeren met een opstartbaar USB-station of u kunt het BIOS ook bijwerken via het eenmalige opstartmenu op de computer. Als u het BIOS van uw computer wilt bijwerken, kopieert u het BIOS XXXX.exe-bestand naar een USB-schijf die is geformatteerd met het FAT32-bestandssysteem. Start vervolgens uw computer opnieuw op en start op vanaf het USB-station met behulp van het eenmalige opstartmenu.

Over deze taak

BIOS-update

Als u wilt controleren of de BIOS-flashupdate als opstartoptie is vermeld, kunt u uw computer opstarten via het **eenmalige opstartmenu**. Als de optie in de lijst staat, kan het BIOS met deze methode worden bijgewerkt.

Om uw BIOS via het eenmalige opstartmenu bij te werken, hebt u het volgende nodig:

- USB-station geformatteerd naar het FAT32-bestandssysteem (het station hoeft niet opstartbaar te zijn)
- Uitvoerbaar BIOS-bestand dat u hebt gedownload vanaf de Dell Support website en naar de hoofdmap van de USB-schijf hebt gekopieerd
- Voedingsadapter moet aangesloten zijn op de computer
- Een functionele computerbatterij om het BIOS te flashen

Voer de volgende stappen uit om het BIOS bij te werken via het eenmalige opstartmenu:

 **WAARSCHUWING:** Schakel de computer niet uit tijdens het BIOS-flashupdateproces. De computer wordt mogelijk niet opgestart als u de computer uitschakelt.

Stappen

1. Schakel de computer uit en plaats het USB-station met het BIOS-flashupdatebestand.
2. Schakel de computer in en druk op **F12** om het **eenmalige opstartmenu** te openen. Selecteer **BIOS-update** met behulp van de muis of pijltoetsen en druk op Enter.
Het flash BIOS-menu wordt weergegeven.
3. Klik op **Flash from file** (Flashen vanuit bestand).
4. Selecteer het externe USB-apparaat.
5. Selecteer het bestand, dubbelklik op het Flash-doelbestand klik vervolgens op **Submit** (Verzenden).
6. Klik op **Update BIOS** (BIOS bijwerken). De computer wordt opnieuw opgestart om het BIOS te flashen.
7. De computer wordt opnieuw opgestart nadat de BIOS-flashupdate is voltooid.

Systeem- en installatiewachtwoord

 **WAARSCHUWING:** De wachtwoordfunctie zorgt voor een basisbeveiliging van de data in uw computer.

 **WAARSCHUWING:** Zorg ervoor dat uw computer is vergrendeld wanneer deze niet in gebruik is. Iedereen heeft toegang tot de data die op uw computer staan als deze onbeheerd wordt achtergelaten.

Tabel 49. Systeem- en installatiewachtwoord

Type wachtwoord	Omschrijving
Systeemwachtwoord	Wachtwoord dat u moet invoeren om uw besturingssysteem op te starten.
Installatiewachtwoord	Wachtwoord dat u moet invoeren om toegang te krijgen tot de BIOS-instellingen van uw computer en om deze te wijzigen.

U kunt ter beveiliging van uw computer een wachtwoord voor het systeem en de installatie aanmaken.

 **OPMERKING:** De functie Systeem- en installatiewachtwoord is standaard uitgeschakeld.

Een systeeminstallatiewachtwoord toewijzen

Vereisten

U kunt alleen een nieuw systeem- of beheerderswachtwoord instellen wanneer de status op **Niet ingesteld** staat. Druk na het aanzetten of opnieuw opstarten van de computer onmiddellijk op F2 om naar de BIOS-installatie te gaan.

Stappen

1. Selecteer in het scherm **System BIOS** of **System Setup** de optie **Security** en druk op Enter.
Het scherm **Security** wordt geopend.
2. Selecteer **System/Admin Password** en maak een wachtwoord aan in het veld **Enter the new password**.
Hanteer de volgende richtlijnen om het systeemwachtwoord te maken:
 - Een wachtwoord mag bestaan uit maximaal 32 tekens.
 - Een wachtwoord moet ten minste één speciaal teken bevatten: "(! " # \$ % & ' * + , - . / : ; < = > ? @ [\] ^ _ ` { | })" "
 - Een wachtwoord mag de cijfers 0 tot en met 9 bevatten.
 - Een wachtwoord mag hoofdletters bevatten van A tot en met Z.
 - Een wachtwoord mag kleine letters bevatten van a tot en met z.
3. Typ het wachtwoord dat u eerder hebt ingevoerd in het veld **Bevestig nieuw wachtwoord** en klik op **OK**.
4. Druk op J om de wijzigingen op te slaan.
De computer start opnieuw op.

Een bestaand systeem- en/of installatiewachtwoord verwijderen of wijzigen

Vereisten

Zorg ervoor dat de **Wachtwoordstatus** in de systeeminstallatie is ontgrendeld voordat u het wachtwoord voor het systeem en/of de installatie verwijdert of wijzigt. U kunt geen van beide wachtwoorden verwijderen of wijzigen als **Wachtwoordstatus** is vergrendeld. Druk na het aanzetten of opnieuw opstarten van de computer onmiddellijk op F2 om naar de systeeminstallatie te gaan.

Stappen

1. Selecteer **System Security** in het scherm **System BIOS**, of **System Setup** en druk op Enter.
Het scherm **System Security** wordt geopend.
2. Controleer in het scherm **Systeembeveiliging** of de **Wachtwoordstatus** ontgrendeld is.
3. Selecteer **Systeemwachtwoord**. Wijzig of verwijder het bestaande systeemwachtwoord en druk op Enter of Tab.
4. Selecteer **Installatiewachtwoord**. Wijzig of verwijder het bestaande installatiewachtwoord en druk op Enter of Tab.
 **OPMERKING:** Als u het systeem- en/of installatiewachtwoord wijzigt, voert u het nieuwe wachtwoord opnieuw in wanneer dit wordt gevraagd. Als u het systeem- en/of installatiewachtwoord verwijdert, moet u de verwijdering bevestigen wanneer u hierom wordt gevraagd.
5. Druk op Esc. Er verschijnt een melding om de wijzigingen op te slaan.
6. Druk op Y om de wijzigingen op te slaan en de **Systeeminstallatie** te verlaten.

De computer start opnieuw op.

Stelsysteem- en installatiewachtwoorden kennen

Over deze taak

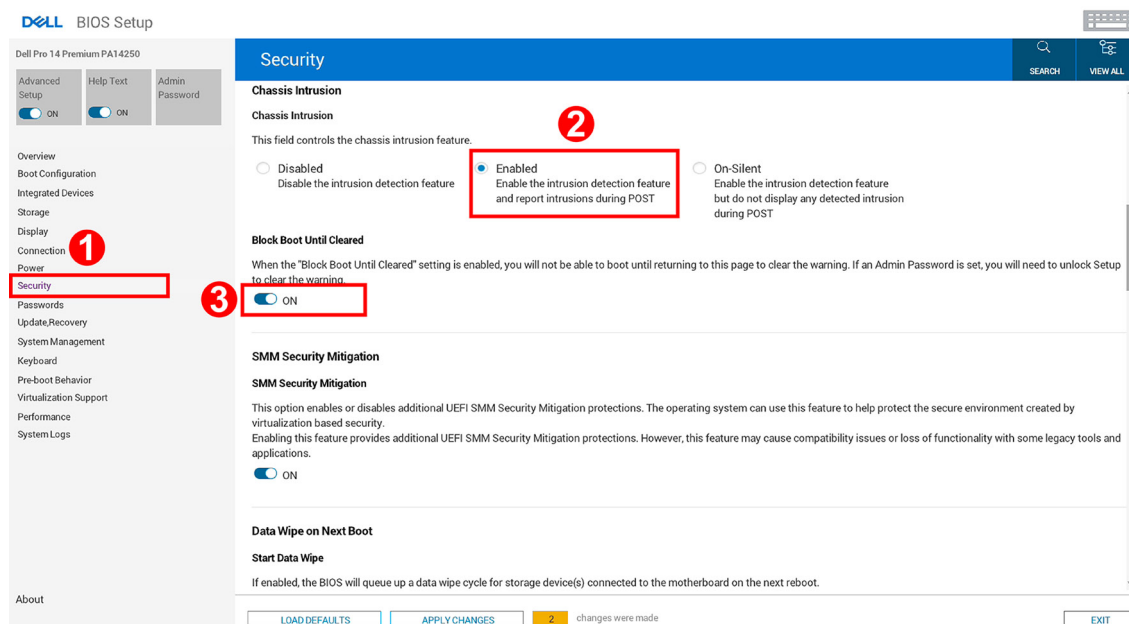
Om de stelsysteem- of installatiewachtwoorden te kennen, neemt u contact op met Dell technische support, zoals omschreven op [Contact opnemen met support](#).

OPMERKING: Voor informatie over het resetten van wachtwoorden voor Windows of toepassingen, raadpleegt u de documentatie van Windows of uw toepassing.

Clearing Chassis Intrusion Alerts

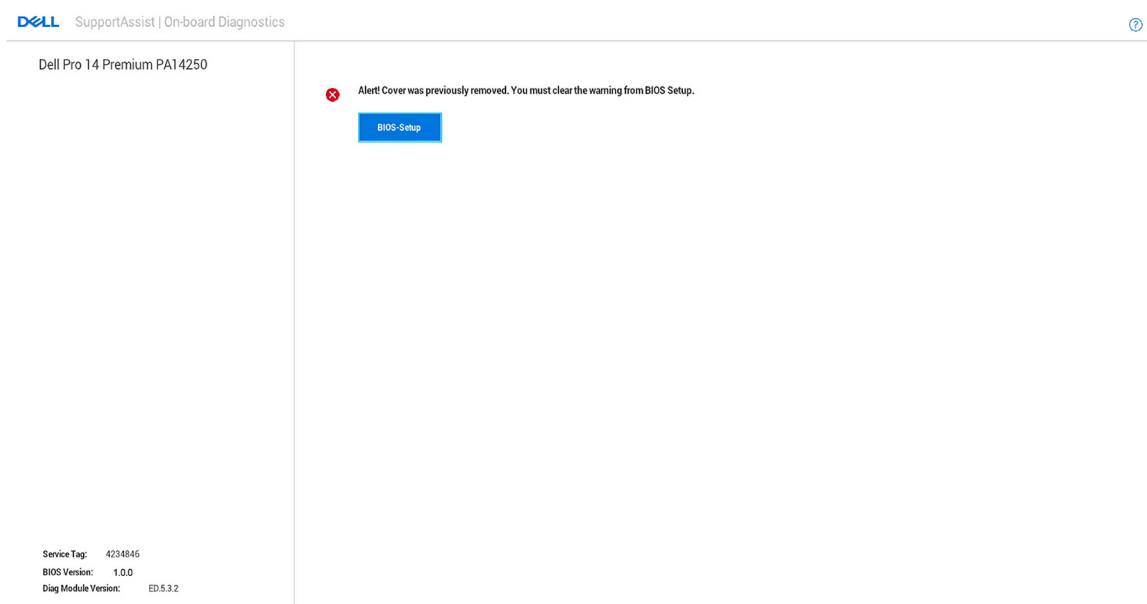
A chassis intrusion switch identifies whenever the system base cover has been removed. You can enable alerts about any intrusions through the **Chassis Intrusion** option in the Security submenu of the BIOS setup menu.

Once enabled, the **Block Boot Until Cleared** feature allows you to select whether to prevent the bootup until the intrusion alert is resolved.



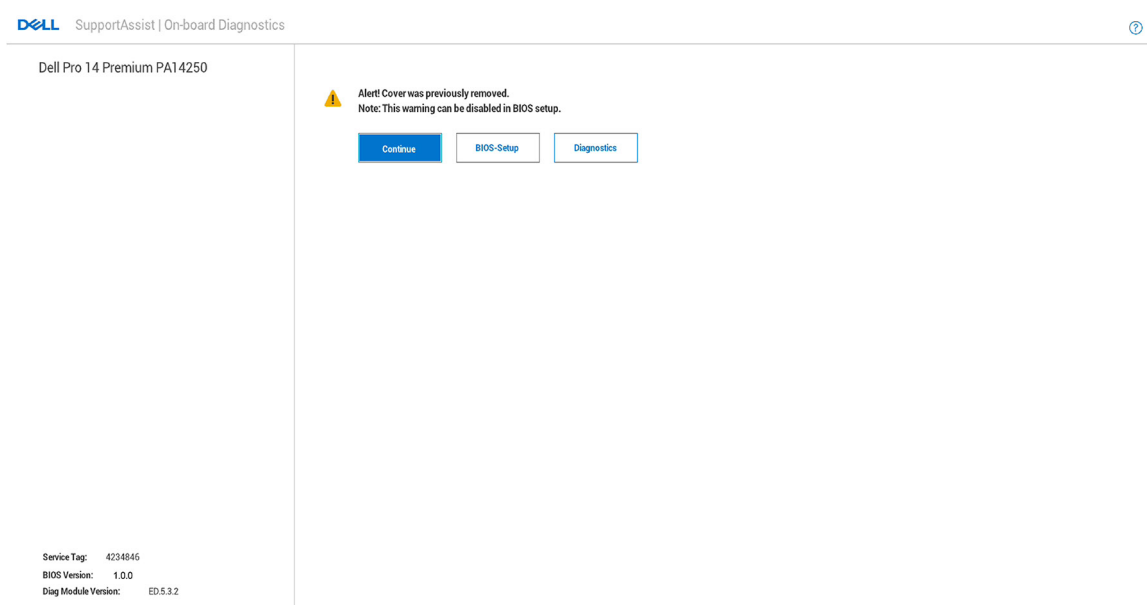
Afbeelding 78. Block Boot Until Cleared

If **Block Boot Until Cleared** is set to **ON**, then you must select **BIOS-Setup** and clear the intrusion alert in order to boot up the computer normally.



Afbeelding 79. BIOS-Setup

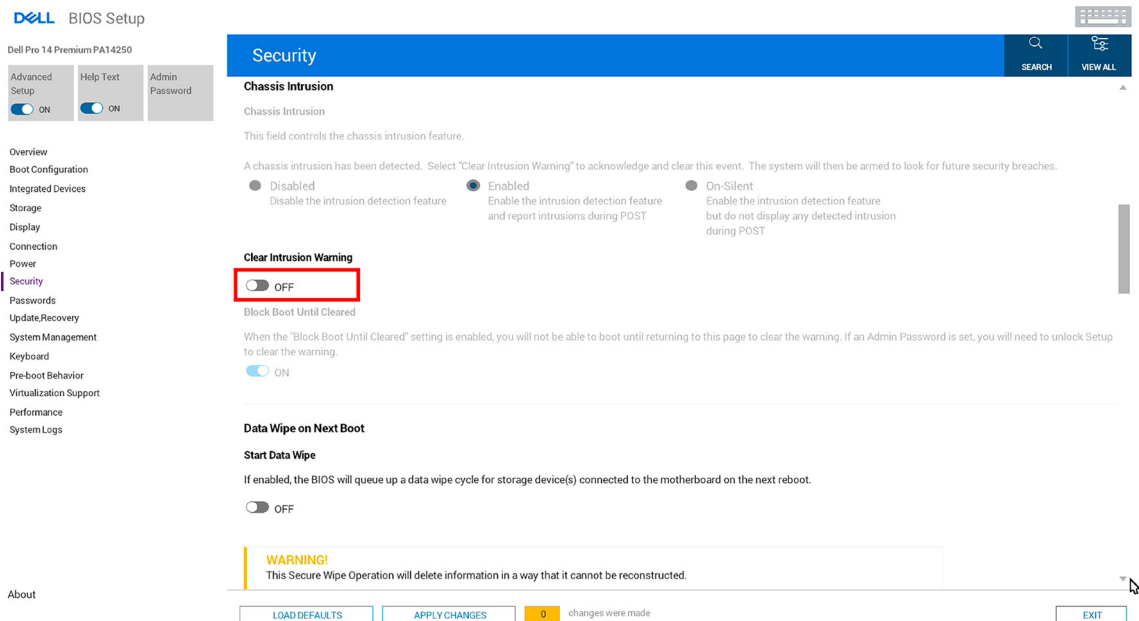
When **Block Boot Until Cleared** is switch to **OFF**, you can choose either **Continue** to proceed with the normal computer boot-up or **BIOS-Setup** to clear the alert.



Afbeelding 80. BIOS-Setup

OPMERKING: If the **Continue** option is selected, then you continue to see the alert each time the computer is turned on until the alert is cleared.

To clear the alert, select **ON** in the **Clear Intrusion Warning** field that is located within the **Security** sub-menu of the **BIOS setup** menu.



Afbeelding 81. Clear Intrusion Warning

Probleemoplossing

Omgaan met opgezette oplaadbare lithium-ionbatterijen

Net als de meeste laptops gebruiken Dell laptops lithium-ionbatterijen. Eén type lithium-ionbatterij is de oplaadbare lithium-ionbatterij. Oplaadbare lithium-ionbatterijen zijn in de afgelopen jaren in populariteit toegenomen en worden nu standaard gebruikt in de elektronicasector vanwege de voorkeuren van de klant voor een dunnere vormfactor (voornamelijk bij de nieuwe ultradunne laptops) en de lange gebruiksduur van de batterij. De technologie in oplaadbare lithium-ionbatterijen kan echter opzwellen van de batterijcellen veroorzaken.

Een opgezwollen batterij kan van invloed zijn op de prestaties van de laptop. Om verdere schade aan de behuizing van het apparaat of dat interne componenten niet goed functioneren te voorkomen, dient u de laptop niet meer te gebruiken en die te ontladen door de voedingsadapter los te koppelen en de batterij leeg te laten lopen.

Opgezwollen batterijen dienen niet gebruikt te worden en dienen te worden vervangen en op juiste wijze weg te worden gegooid. Wij adviseren u contact op te nemen met Dell Support om een gezwollen batterij te laten vervangen onder de voorwaarden van de toepasselijke garantie of het toepasselijke servicecontract, inclusief opties voor vervanging door een door Dell geautoriseerde servicetechnicus.

De richtlijnen voor het omgaan met en vervangen van oplaadbare lithium-ionbatterijen zijn als volgt:

- Wees voorzichtig bij het omgaan met oplaadbare lithium-ionbatterijen.
- Ontlaad de batterij voordat u deze uit de laptop verwijdt. Koppel de voedingsadapter los van de computer en gebruik de computer alleen op batterijvermogen om de batterij te ontladen. De batterij is volledig ontladen als de computer niet meer wordt ingeschakeld wanneer de aan-uitknop wordt ingedrukt.
- U moet de batterij niet pletten, laten vallen, beschadigen of doorboren met vreemde voorwerpen.
- Stel de batterij niet bloot aan hoge temperaturen en haal batterijpacks cellen niet uit elkaar.
- Oefen geen druk uit op het oppervlak van de batterij.
- Buig de batterij niet.
- Gebruik geen gereedschap van welke aard ook om de batterij los te wrikken.
- Als een batterij vast komt te zitten in een apparaat als gevolg van zwellen, moet u niet proberen deze los te maken omdat het doorboren, buigen of pletten van een batterij gevaarlijk kan zijn.
- Monteer een beschadigde of opgezette batterij niet opnieuw in een laptop.
- Opgezette batterijen die onder de garantie vallen, moeten worden geretourneerd aan Dell in een erkende verpakking (geleverd door Dell) om te voldoen aan de transportwetgeving. Opgezette batterijen die niet onder de garantie vallen, moeten worden afgevoerd via een goedgekeurd recyclingcentrum. Neem voor ondersteuning en verdere instructies contact op met Dell Support via de [website van Dell Support](#).
- Het gebruik van een batterij die niet van Dell is of een incompatibele batterij kan de kans op brand of een explosie vergroten. Vervang de batterij alleen met een compatibele batterij die is gekocht bij Dell en die ontworpen is om met uw Dell computer te gebruiken. Gebruik geen batterij uit andere computers. Schaf alleen legitieme batterijen aan via de [website van Dell](#) of anderszins rechtstreeks bij Dell.

Oplaadbare lithium-ionbatterijen kunnen vanwege verschillende oorzaken zoals levensduur, aantal oplaadcycli of blootstelling aan hitte opzwellen. Zoek Dell Laptop batterij in de knowledge base-bron op de [website van Dell Support](#) voor meer informatie over het verbeteren van de prestaties en levensduur van de batterij van de laptop en om de kans op problemen te verkleinen.

Dell SupportAssist Pre-Boot System prestatiecontrole uitvoeren

Over deze taak

De SupportAssist-diagnose (ook bekend als systeemdiagnose) voert een volledige controle van uw hardware uit. Dell SupportAssist Pre-Boot System prestatiecontrole maakt deel uit van het BIOS en wordt door het BIOS intern gestart. De geïntegreerde systeemdiagnostiek biedt een aantal opties voor specifieke apparaten of apparaatgroepen waarmee u het volgende kunt doen:

- tests automatisch of in interactieve modus laten uitvoeren
- Herhaal de tests.
- Testresultaten weergeven of opslaan.
- Grondige tests uitvoeren om meer opties toe te voegen en details te krijgen over defecte apparaten.
- Statusmeldingen weergeven waarin staat of de tests goed verlopen zijn.
- Foutmeldingen weergeven waarin staat of er tijdens het testen problemen zijn opgetreden.

 **OPMERKING:** Voor sommige testen voor specifieke apparaten is gebruikersinteractie vereist. Zorg er voor dat u altijd aanwezig bent bij de computer wanneer er diagnostische testen worden uitgevoerd.

Ga voor meer informatie naar het knowledge base-artikel [000181163](#).

De prestatiecontrole SupportAssist Pre-boot System uitvoeren

Stappen

1. Schakel de computer in.
2. Druk tijdens het opstarten van de computer op de F12-toets.
3. Selecteer in het opstartmenu **Diagnose**.

De snelle diagnostische test begint.

-  **OPMERKING:** Ga naar de [website van Dell Support](#) voor meer informatie over het uitvoeren van de SupportAssist Pre-boot System prestatiecontrole op een specifiek apparaat.
4. Van eventuele problemen worden foutcodes weergegeven.
Noteer de foutcode en het validatienummer en neem contact op met Dell.

Geïntegreerde zelftest (BIST)

(Geïntegreerde zelftest voor systeemkaart) M-BIST

M-BIST is het ingebouwde diagnostische zelftesthulpprogramma van de systeemkaart waarmee de diagnosenuwkeurigheid van fouten van de geïntegreerde controllers (EC) op de systeemkaart kan worden verbeterd.

 **OPMERKING:** M-BIST kan handmatig worden gestart voor de POST (Power On Self Test).

M-BIST uitvoeren

 **OPMERKING:** Voordat u M-BIST start, moet u ervoor zorgen dat de computer uitgeschakeld is.

1. Houd zowel de **M**-toets als de aan/uit-knop ingedrukt om de M-BIST te starten.
2. Het LED-lampje van de batterij-indicator kan twee statussen hebben:
 - Uit: er is geen fout gedetecteerd.
 - Oranje en wit: geeft aan dat er een fout is met de systeemkaart.
3. Als er een fout met de systeemkaart is opgetreden, knippert de LED voor de batterijstatus 30 seconden lang een van de volgende foutcodes:

Tabel 50. Foutcodes voor ledlampjes

Knipperend patroon		Mogelijk probleem
Oranje	Wit	
2	1	CPU-fout
2	8	LCD-voedingsrailfout
1	1	TPM-detectiefout
2	4	Geheugen-/RAM-fout

- Als er geen fout met de systeemkaart is, loopt de LCD 30 seconden lang door de kleurenschermen (zoals is beschreven in het gedeelte LCD-BIST) en wordt deze daarna uitgeschakeld.

Logische ingebouwde zelftest (L-BIST)

L-BIST is een verbetering van de enkele LED-foutcodediagnostiek en wordt automatisch gestart tijdens POST. L-BIST zal de LCD-stroomrail controleren. Als de lcd niet van stroom wordt voorzien (bijv. vanwege een stroomonderbreking van de L-BIST) geeft de batterijstatus-LED ofwel foutcode [2,8] of foutcode [2,7] aan.

 **OPMERKING:** Als L-BIST niet werkt, kan de LCD-BIST niet functioneren omdat de LCD niet van voeding wordt voorzien.

De L-BIST starten

- Schakel de computer in.
- Als de computer niet normaal wordt opgestart, controleert u de LED voor de batterijstatus:
 - Als de LED voor de batterijstatus een foutcode [2,7] knippert, is de beeldschermkabel mogelijk niet goed aangesloten.
 - Als LED voor de batterijstatus een foutcode knippert [2,8], is er een probleem met de LCD-stroomrail van de systeemkaart waardoor er dus geen voeding aan de LCD wordt geleverd.
- Als de foutcode [2,7] wordt weergegeven, controleert u of de beeldschermkabel correct is aangesloten.
- Als de foutcode [2,8] wordt weergegeven, moet u de systeemkaart terugplaatsen.

Geïntegreerde zelftest voor lcd (LCD-BIST)

Laptops van Dell hebben een geïntegreerde diagnostische tool die u helpt om te bepalen of de schermafwijking die u ervaart een inherent probleem is met het LCD (beeldscherm) van de Dell laptop of met de videokaart (GPU) en computerinstellingen.

Wanneer u schermafwijkingen opmerkt, zoals flikkeren, vervorming, helderheidsproblemen, wazige of onscherpe beelden, horizontale of verticale lijnen, kleurvervaging enz., is het altijd goed om het lcd (beeldscherm) uit te sluiten door de LCD-BIST uit te voeren.

Hoe kan ik de LCD-BIST starten?

- Schakel de computer uit.
- Ontkoppel alle randapparatuur die op de computer is aangesloten. Sluit alleen de voedingsadapter (lader) aan op de pc.
- Zorg ervoor dat het lcd-scherm schoon is (geen stofdeeltjes op het oppervlak van het beeldscherm).
- Houd op de laptop de **D**-toets en de aan-uitknop ingedrukt om de LCD-BIST-modus te activeren. Houd de **D** -toets ingedrukt totdat de computer wordt opgestart.
- Op het beeldscherm worden ononderbroken kleuren weergegeven en veranderen de kleuren op het gehele scherm twee keer naar wit, zwart, rood, groen en blauw.
- Vervolgens worden de kleuren wit, zwart en rood weergegeven.
- Controleer het scherm zorgvuldig op afwijkingen (eventuele lijnen, wazige kleuren of vervorming op het scherm).
- Aan het einde van de laatste ononderbroken kleur (rood) wordt de computer uitgeschakeld.

 **OPMERKING:** Bij het opstarten initieert de Dell SupportAssist Preboot Diagnostics eerst een LCD-BIST en verwacht dan een tussenkomst van de gebruiker om de functionaliteit van het LCD-scherm te bevestigen.

System-diagnostic lights

This section lists the system-diagnostic lights of your Dell Pro 14 Premium PA14250.

The following table shows different Service LED blinking patterns and associated problems. The diagnostic light codes consist of a two-digit number, and the digits are separated by a comma. The number stands for a blinking pattern; the first digit shows the number of blinks in amber color, and the second digit shows the number of blinks in white color. The Service LED blinks in the following manner:

- The Service LED blinks the number of times equal to value of the first digit and turns off with a short pause.
- After that, the Service LED blinks the number of times equal to the value of the second digit.
- The Service LED turns off again with a longer pause.
- After the second pause, the blinking pattern will be repeated.

Tabel 51. Diagnostic light codes

Diagnostic light codes (Amber, White)	Problem description	Recommended solutions
1,1	TPM Detection Failure	Replace the system board.
1,2	Unrecoverable SPI Flash Failure	Replace the system board.
1,5	EC unable to program i-Fuse	Replace the system board.
1,6	Generic catch-all for ungraceful EC code flow errors	Disconnect all power source (AC, coin cell) and drain flea power by pressing and holding down the power button.
1,7	Non-RPMC Flash on Boot Guard fused system	Flash latest BIOS version. If the problem persists, replace the system board.
1,8	Chipset "Catastrophic Error" signal has tripped	Replace the CPU.
2,1	CPU configuration or CPU failure	Replace the CPU.
2,2	System board: BIOS or Read-Only Memory (ROM) failure	Flash latest BIOS version. If the problem persists, replace the system board.
2,3	No memory or Random-Access Memory (RAM) detected	Reseat and swap memory modules among the slots. If the problem persists, replace the memory module.
2,4	Memory or Random-Access Memory (RAM) failure	Reseat and swap memory modules among the slots. If the problem persists, replace the memory module.
2,5	Invalid memory installed	Reseat and swap memory modules among the slots. If the problem persists, replace the memory module.
2,6	System board/Chipset Error	Replace the system board.
2,7	LCD failure SBIOS message	Replace the display.
2,8	Display power-rail failure on the system board	Replace the system board.
3,1	CMOS battery failure	Reset the CMOS battery connection. If the problem persists, replace the RTC battery.
3,2	PCI of Video card/chip failure	Replace the system board.
3,3	Recovery image not found	Replace the system board.
3,4	Recovery image found but invalid	Replace the system board.
3,5	EC power-rail error	Replace the system board.
3,6	Flash corruption detected by SBIOS	Flash corruption is detected by SBIOS. If the problem persists, replace the system board.
3,7	Timeout waiting on ME to reply to HECI message	Replace the system board.
4,1	Memory DIMM power rail failure	Replace the system board.
4,2	CPU Power cable connection issue	• Perform the M-BIST Test, reseat the cable. • If this does not work, replace the system board, power supply or cabling.

Tabel 51. Diagnostic light codes (vervolg)

Diagnostic light codes (Amber, White)	Problem description	Recommended solutions
4,4	LCD Power Rail Failure	Replace system board

Het besturingssysteem herstellen

Wanneer uw computer zelfs na herhaalde pogingen niet meer kan opstarten naar het besturingssysteem, wordt Dell SupportAssist OS Recovery automatisch gestart.

Dell SupportAssist OS Recovery is een standalone tool die vooraf is geïnstalleerd op alle Dell computers met het Windows-besturingssysteem. Het bestaat uit hulpprogramma's voor het diagnosticeren en oplossen van problemen die kunnen optreden voordat uw computer opstart naar het besturingssysteem. Hiermee kunt u hardwareproblemen diagnosticeren, uw computer herstellen, een back-up van uw bestanden maken en uw computer terugzetten op de fabrieksinstellingen.

U kunt het hulpprogramma ook downloaden van de Dell Support website om uw computer te herstellen en de problemen op te lossen als het niet lukt om op te starten naar het primaire besturingssysteem als gevolg van software- of hardwarefouten.

Zie voor meer informatie over Dell SupportAssist OS Recovery de *Dell SupportAssist OS Recovery-gebruikershandleiding* op [tools voor bruikbaarheid op de website van Dell Support](#). Klik op **SupportAssist** en klik vervolgens op **SupportAssist OS Recovery**.

Real-Time Clock (RTC Reset)

The Real-Time Clock (RTC) reset function enables you or the service technician to recover Dell computers from No POST/No Power/No Boot situations.

Start the RTC reset with the computer powered off and connected to AC power. Press and hold the power button for twenty-five seconds and the power LED flashes twice. The computer RTC Reset occurs after you release the power button.

Back-upmedia en herstelopties

Het is raadzaam om een herstelschijf te maken voor het oplossen van problemen die met Windows kunnen optreden. Dell biedt meerdere opties voor het herstellen van het Windows-besturingssysteem op uw Dell computer. Voor meer informatie, zie [Dell Windows back-upmedia en herstelopties](#).

Netwerkstroomcyclus

Over deze taak

Als uw computer geen toegang tot internet kan krijgen vanwege problemen met de netwerkverbinding, reset u uw netwerkkapparaat door de volgende stappen uit te voeren:

Stappen

1. Schakel de computer uit.
2. Schakel de modem uit.

 **OPMERKING:** Sommige internetproviders (ISP's) bieden een gecombineerde modem/router.

3. Schakel de draadloze router uit.
4. Wacht 30 seconden.
5. Schakel de draadloze router in.
6. Schakel de modem in.
7. Zet de computer aan.

Drain flea power (perform hard reset)

Over deze taak

Flea power is the residual static electricity that remains in the computer even after it has been powered off and the battery is removed.

For your safety, and to protect the sensitive electronic components in your computer, you must drain residual flea power before removing or replacing any components in your computer.

Draining flea power, also known as performing a "hard reset," is also a common troubleshooting step if your computer does not turn on or boot into the operating system.

Perform the following steps to drain the flea power:

Stappen

1. Turn off the computer.
2. Disconnect the power adapter from the computer.
3. Remove the base cover.
4. Remove the battery.
5. Press and hold the power button for 20 seconds to drain the flea power.
6. Install the battery.
7. Install the base cover.
8. Connect the power adapter to the computer.
9. Turn on the computer.



OPMERKING: For more information about performing a hard reset, go to [Dell Support Site](#). On the menu bar at the top of the Support page, select Support > Support Library. In the Search field on the Support Library page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.

Hulp verkrijgen en contact opnemen met Dell

Bronnen voor zelfhulp

U kunt informatie en hulp voor producten en services van Dell krijgen door middel van deze bronnen voor zelfhulp.

Tabel 52. Bronnen voor zelfhulp

Bronnen voor zelfhulp	Bronlocatie
Informatie over producten en services van Dell	Website van Dell
Tips	
Contact opnemen met de ondersteuning	In Windows Zoeken typt u Contact Support en drukt u op Enter.
Online help voor besturingssysteem	Supportwebsite voor Windows Supportwebsite voor Linux
Toegang krijgen tot de beste oplossingen, diagnostische gegevens, drivers en downloads en meer informatie over uw computer via video's, handleidingen en documenten.	De servicetag of de Express-servicecode van uw Dell computer bieden een unieke identificatiemethode. Om relevante ondersteuningsbronnen voor uw Dell computer te bekijken, kunt u het beste de servicetag of Express-servicecode invoeren op de website van Dell Support . Voor meer informatie over het vinden van de servicetag voor uw computer raadpleegt u Zoek de servicetag voor uw computer .
Dell Knowledge Base-artikelen	1. Ga naar de website van Dell Support. 2. Selecteer op de menubalk boven aan de ondersteuningspagina de optie Support > Supportbibliotheek. 3. Typ in het zoekveld op de pagina Supportbibliotheek het trefwoord, onderwerp of modelnummer en klik of tik dan op het zoekpictogram om de gerelateerde artikelen weer te geven.

Contact opnemen met Dell

Ga naar de [website van Dell Support](#) als u contact wilt opnemen met Dell voor verkoop, technische support of aan de klantenservice gerelateerde zaken.

 **OPMERKING:** De beschikbaarheid van de services kan per land, regio en product verschillen.

 **OPMERKING:** Wanneer u geen actieve internetverbinding hebt, kunt u de contactgegevens vinden over uw aankoopfactuur, de verzendbrief, de rekening of in uw Dell productcatalogus.