

Dell Pro 14 Premium

PA14250

Owner's Manual

Poznámky, upozornenia a výstrahy

 **POZNÁMKA:** POZNÁMKA uvádza dôležité informácie, ktoré vám umožnia využívať váš produkt lepšie.

 **VAROVANIE:** UPOZORNENIE naznačuje, že existuje riziko poškodenia hardvéru alebo straty údajov a ponúka vám spôsob, ako sa tomuto problému vyhnúť.

 **VÝSTRAHA:** VÝSTRAHA označuje potenciálne riziko vecných škôd, zranení osôb alebo smrti.

Kapitola 1: Dell Pro 14 Premium PA14250 z rôznych pohľadov.....	7
Right.....	7
Left.....	8
Top.....	9
Top (for computers shipped with Collaboration Touchpad).....	10
Front.....	11
Bottom.....	12
Locate the Service Tag or Express Service Code label of your computer.....	12
Kontrolka stavu nabitia batérie.....	13
Kapitola 2: Set up your Dell Pro 14 Premium PA14250.....	14
Kapitola 3: Technické informácie o modeli Dell Pro 14 Premium PA14250.....	16
Dimensions and weight.....	16
Processor.....	16
Čipová súprava.....	16
Operačný systém.....	17
Pamäť.....	17
External ports and slots.....	17
Sloty v počítači.....	18
Bezdrôtový modul.....	18
Modul WWAN.....	19
Zvuk.....	20
Dátové úložisko.....	20
Klávesnica.....	21
Keyboard shortcuts of Dell Pro 14 Premium PA14250.....	21
Kamera.....	23
Dotykový panel.....	23
Touchpad with collaboration controls (optional).....	24
Power adapter.....	25
Power adapter requirements of Dell Pro 14 Premium PA14250 (for computers shipped with 2-cell, 40 Wh battery).....	26
Power adapter requirements of Dell Pro 14 Premium PA14250 (for computers shipped with 3-cell, 60 Wh battery).....	26
Battery.....	27
Obrazovka.....	28
Fingerprint reader (optional).....	29
Snímač.....	30
Integrovaný grafický procesor.....	30
Multiple display support matrix.....	30
Hardvérové zabezpečenie.....	30
Prevádzkové a skladovacie prostredie.....	31
Podmienky poskytovania podpory firmy Dell.....	31
ComfortView Plus.....	31
Dell Optimizer.....	32

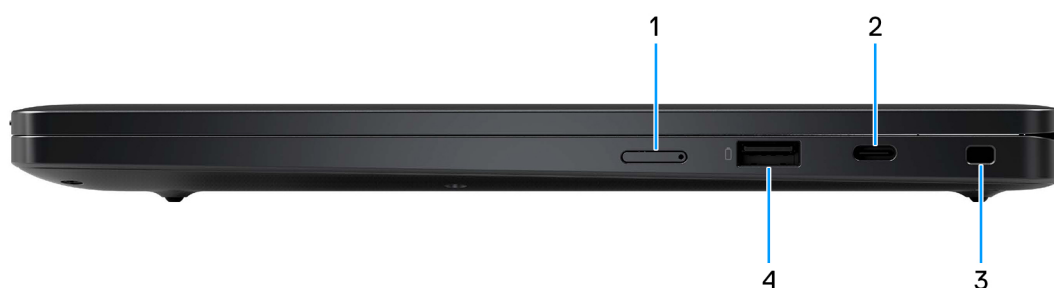
Kapitola 4: Servisný úkon v počítači.....	33
Bezpečnostné pokyny.....	33
Pred servisným úkonom v počítači.....	33
Bezpečnostné opatrenia.....	34
Ochrana proti elektrostatickým výbojom (ESD).....	34
Prenosná antistatická servisná súprava.....	35
Preprava komponentov citlivých na ESD.....	36
Po dokončení práce v počítači.....	36
BitLocker.....	36
Odporúčané nástroje.....	36
Zoznam skratiek.....	37
Hlavné komponenty počítača Dell Pro 14 Premium PA14250.....	38
 Kapitola 5: Demontáž a montáž jednotiek vymeniteľných zákazníkom (CRU).....	 41
nano-SIM card tray.....	41
Removing the nano-SIM card tray	41
Installing the nano-SIM card tray	42
nano-SIM card.....	43
Removing the nano-SIM card.....	43
Installing the nano-SIM card.....	44
Spodný kryt.....	45
Removing the base cover.....	45
Installing the base cover.....	48
Batéria.....	49
Bezpečnostné opatrenia týkajúce sa nabíjateľnej lítiovo-iónovej batérie.....	49
Removing the battery.....	50
Installing the battery.....	51
Disk SSD (Solid State Drive).....	53
Removing the M.2 2230 solid state drive.....	53
Installing the M.2 2230 solid state drive.....	53
Karta WWAN (Wireless Wide Area Network).....	54
Removing the WWAN card	54
Installing the WWAN card	55
Ventilátor.....	57
Removing the left fan	57
Installing the left fan.....	58
Removing the right fan	58
Installing the right fan.....	59
Reproduktory.....	60
Removing the speakers without antenna (WWAN configuration)	60
Installing the speakers without antenna (WWAN configuration)	61
 Kapitola 6: Demontáž a montáž jednotiek vymeniteľných v teréne (FRU).....	 63
Reproduktory.....	63
Removing the speakers with antennas (WWAN configuration).....	63
Installing the speakers with antennas (WWAN configuration).....	65
Chladič.....	66
Removing the heat sink.....	66

Installing the heat sink.....	67
I/O board.....	68
Removing the left I/O-board.....	68
Installing the left I/O-board.....	70
Removing the right I/O-board (without WWAN antennas).....	72
Installing the right I/O-board (without WWAN antennas).....	75
Removing the right I/O-board (with WWAN antennas).....	78
Installing the right I/O-board (with WWAN antennas).....	81
USB Type-C module.....	84
Removing the left USB Type-C module.....	84
Installing the left USB Type-C module	85
Removing the right USB Type-C module.....	86
Installing the right USB Type-C module.....	87
Tlačidlo napájania.....	88
Removing the power button.....	88
Installing the power button.....	89
Zostava obrazovky.....	91
Removing the display assembly	91
Installing the display assembly	93
Systémová doska.....	95
Removing the system board	95
Installing the system board	99
Klávesnica.....	103
Removing the keyboard assembly.....	103
Installing the keyboard assembly	105
Zostava opierky dlaní.....	108
Removing the palm-rest assembly	108
Installing the palm-rest assembly	109
Kapitola 7: Softvér.....	111
Operačný systém.....	111
Ovládače a súbory na stiahnutie.....	111
Kapitola 8: Nastavenie systému BIOS.....	112
Entering BIOS Setup program.....	112
Navigačné klávesy.....	112
Ponuka jednorazového spustenia systému otváraná klávesom F12.....	112
View Advanced Setup options.....	113
View Service options.....	113
System Setup options.....	113
Aktualizácia systému BIOS.....	133
Aktualizácia systému BIOS v systéme Windows.....	133
Aktualizácia systému BIOS pomocou USB kľúča v prostredí systému Windows.....	133
Aktualizácia systému BIOS v prostrediach systémov Linux a Ubuntu.....	134
Aktualizácia systému BIOS z ponuky jednorazového spustenia systému.....	134
Systémové heslo a heslo pre nastavenie.....	135
Nastavenie hesla nastavenia systému.....	135
Vymazanie alebo zmena existujúceho systémového hesla alebo hesla na nastavenie.....	135
Odstránenie systémových hesiel a hesiel na nastavenie.....	136

Clearing Chassis Intrusion Alerts.....	136
Kapitola 9: Riešenie problémov.....	139
Manipulácia s nafúknutými nabíjateľnými lítiovo-iónovými batériami.....	139
Diagnostický nástroj Dell SupportAssist Pre-boot System Performance Check.....	139
Spustenie nástroja SupportAssist Pre-Boot System Performance Check.....	140
Integrovaný automatický test (BIST).....	140
(Integrovaný autodiagnostický test) M-BIST.....	140
Vstavaný logistický test (L-BIST).....	141
Integrovaný autodiagnostický test (LCD-BIST) obrazovky LCD.....	141
System-diagnostic lights.....	141
Obnovenie operačného systému.....	143
Real-Time Clock (RTC Reset).....	143
Zálohovacie médiá a možnosti obnovenia.....	143
Cyklus sieťového napájania.....	143
Drain flea power (perform hard reset).....	143
Kapitola 10: Získanie pomoci a kontaktovanie firmy Dell.....	145

Dell Pro 14 Premium PA14250 z rôznych pohľadov

Right



Obrázok 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.

POZNÁMKA: 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](#).

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

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

POZNÁMKA: 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

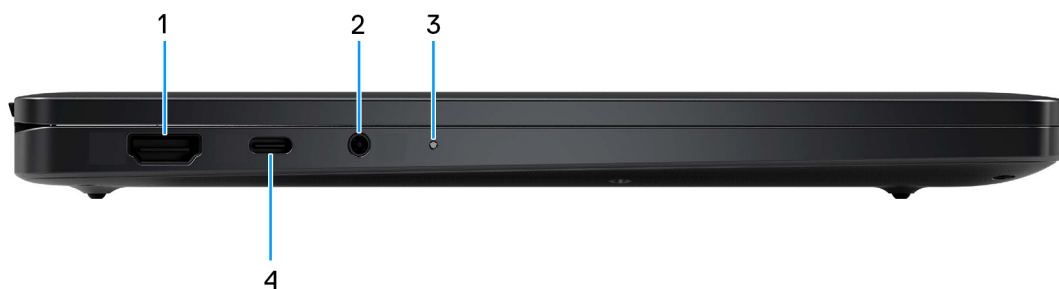
Connect devices such as external storage devices and printers.

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

POZNÁMKA: 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.

POZNÁMKA: 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



Obrázok 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.

POZNÁMKA: 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](#).

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

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

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

Top



Obrázok 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.

 **POZNÁMKA:** 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)



Obrázok 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.

POZNÁMKA: 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)**

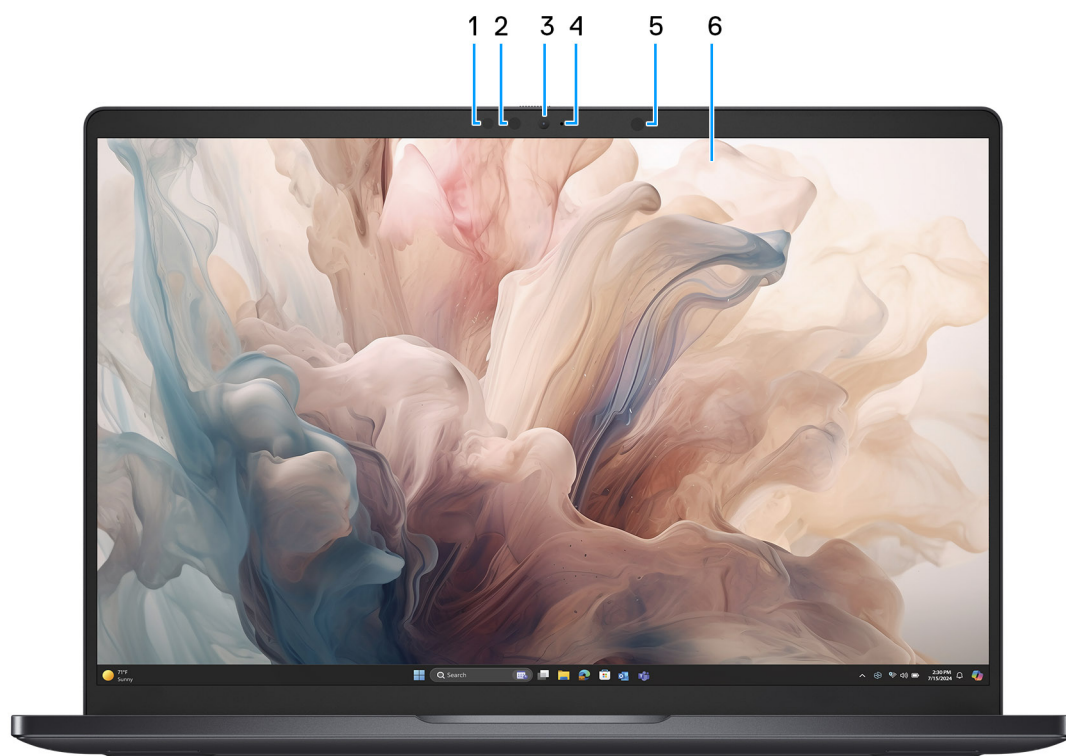
Tap to start or stop sharing your screen.

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



Obrázok 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.

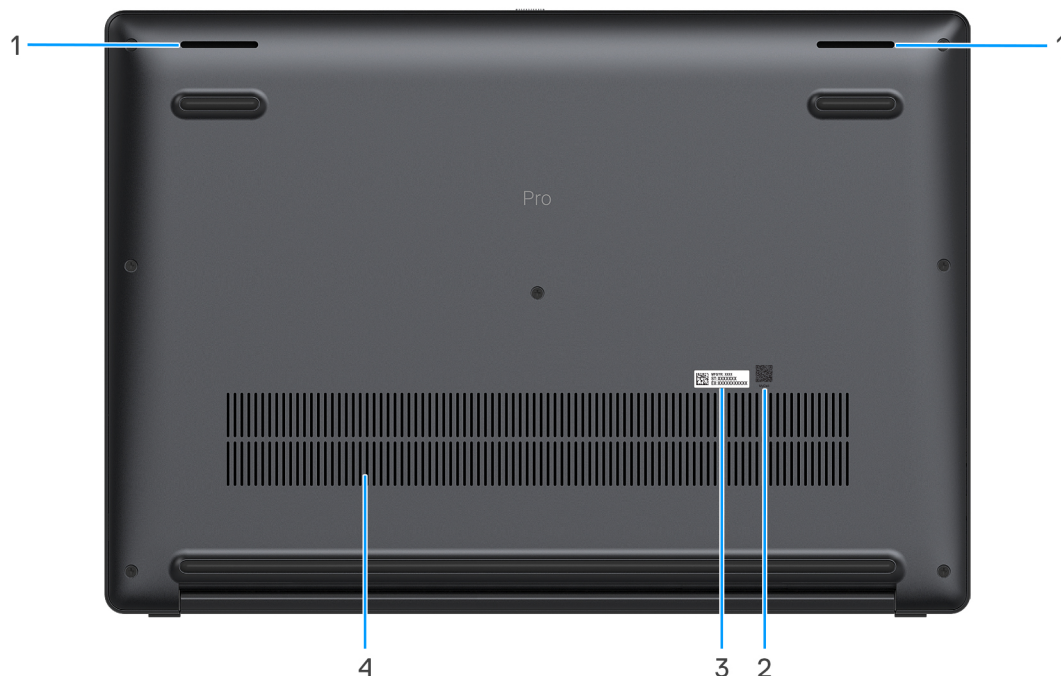
5. **Ambient Light Sensor**

Detects the ambient light and automatically adjusts the display brightness.

6. **Display panel**

Provides visual output to the user.

Bottom



Obrázok 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](#).



Obrázok 7. Service Tag/Express Service Code location

Kontrolka stavu nabitia batérie

V nasledujúcej tabuľke uvádzame informácie o kontrolke stavu nabitia batérie vášho počítača Dell Pro 14 Premium PA14250.

Tabuľka1. Správanie kontrolky stavu nabitia batérie

Zdroj napájania	Signál diódy LED	Stav napájania systému	Úroveň nabitia batérie
Napájací adaptér	Nesvieti	S0 – S5	Úplne nabitá
Napájací adaptér	Neprerušované biele svetlo	S0 – S5	< Úplne nabitá
Batéria	Nesvieti	S0 – S5	11 – 100 %
Batéria	Stála oranžová (590+/-3 nm)	S0 – S5	< 10 %

- S0 (ZAPNUTÝ): počítač je zapnutý.
- S4 (Hibernácia): počítač má počas hibernácie najnižšiu spotrebu energie, menej ako v stave ZAPNUTÝ alebo VYPNUTÝ. Počítač je takmer v stave VYPNUTÝ. Kontextové údaje sa zapisujú na úložné zariadenie, čo umožňuje po zapnutí počítača pokračovať tam, kde ste prestali.
- S5 (VYPNUTÝ): počítač je vypnutý.

Set up your Dell Pro 14 Premium PA14250

O tejto úlohe

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

Postup

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



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

POZNÁMKA: 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.

POZNÁMKA: 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.

Tabuľka2. 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 . ① POZNÁMKA: 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 .

Technické informácie o modeli 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.

Tabuľka3. 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)  POZNÁMKA: The weight of your computer depends on the configuration that is offered.	1.14 kg (2.52 lb)

Procesor

V nasledujúcej tabuľke uvádzame podrobnosti o procesoroch, ktoré podporuje váš počítač Dell Pro 14 Premium PA14250.

Tabuľka4. Procesor

Opis	Možnosť č. 1	Možnosť č. 2	Možnosť č. 3	Možnosť č. 4
Typ procesora	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
TDP procesora	17.50 W	17.50 W	17.50 W	17.50 W
Počet jadier procesora	8	8	8	8
Počet vlákien procesora	8	8	8	8
Rýchlosť procesora	up to 4.70 GHz	up to 4.70 GHz	up to 5 GHz	up to 5 GHz
Vyrovnávací pamäť procesora	8 MB	8 MB	12 MB	12 MB
Integrovaná grafika	Intel Arc Graphics 130 V	Intel Arc Graphics 130V	Intel Arc Graphics 140V	Intel Arc Graphics 140V

Čipová súprava

V nasledujúcej tabuľke uvádzame podrobnosti o čipovej súprave, ktorú podporuje váš počítač Dell Pro 14 Premium PA14250.

Tabuľka5. Čipová súprava

Opis	Hodnoty
Čipová súprava	Integrated in the processor
Procesor	Intel Core Ultra 5/7
Šírka zbernice DRAM	64-bit
Flash EPROM	64 MB
Zbernica PCIe	up to Gen4

Operačný systém

Váš počítač Dell Pro 14 Premium PA14250 podporuje tieto operačné systémy:

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

POZNÁMKA: 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.

Pamäť

V nasledujúcej tabuľke uvádzame technické informácie o pamäti vášho počítača Dell Pro 14 Premium PA14250.

Tabuľka6. Technické údaje pamäte

Opis	Hodnoty
Pamäťové sloty	Onboard memory
Typ pamäte	LPDDR5x
Rýchlosť pamäti	8533 MT/s
Maximálna konfigurácia pamäti	32 GB
Minimálna konfigurácia pamäti	16 GB
Podporované konfigurácie pamäti	• 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.

Tabuľka7. External ports and slots

Description	Values
USB ports	• One USB 3.2 Gen 1 (5 Gbps) with PowerShare port

Tabuľka7. External ports and slots (pokračovanie)

Description	Values
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)

Sloty v počítači

V nasledujúcej tabuľke uvádzame zoznam slotov vo vnútri vášho počítača Dell Pro 14 Premium PA14250.

Tabuľka8. Sloty v počítači

Opis	Hodnoty
M.2	- One M.2 2230 slot for solid-state drive - One M.2 3052 slot for 5G WWAN card  POZNÁMKA: Viac informácií o vlastnostiach jednotlivých typoch kariet vo formáte M.2 nájdete v príslušnom článku databázy poznatkov na webovej lokalite podpory firmy Dell.

Bezdrôtový modul

V nasledujúcej tabuľke uvádzame zoznam modulov na pripojenie k bezdrôtovej lokálnej sieti (WLAN), ktoré podporuje model Dell Pro 14 Premium PA14250.

Tabuľka9. Technické údaje bezdrôtového modulu

Opis	Hodnoty
Číslo modelu	Intel Wi-Fi 7 BE201
Prenosová rýchlosť	5670 Mbps
Podporované frekvenčné pásma	2.40 GHz/5 GHz/6 GHz
Štandardy bezdrôtovej komunikácie	- Wi-Fi 802.11a/b/g - Wi-Fi 4 (Wi-Fi 802.11n) - Wi-Fi 5 (Wi-Fi 802.11ac) - Wi-Fi 6E (Wi-Fi 802.11ax) - Wi-Fi 7 (Wi-Fi 802.11be)
Šifrovanie	64-bit/128-bit WEP - AES-CCMP - TKIP

Tabuľka9. Technické údaje bezdrôtového modulu (pokračovanie)

Opis	Hodnoty
Karta bezdrôtovej komunikácie s technológiou Bluetooth	Bluetooth 5.4

Modul WWAN

V nasledujúcej tabuľke je uvedený modul bezdrôtovej rozsiahlej lokálnej siete (WWAN), ktorý je podporovaný v počítači Dell Pro 14 Premium PA14250.

- POZNÁMKA:** Modul WWAN je k dispozícii len pri niektorých konfiguráciách a v niektorých regiónoch.
- POZNÁMKA:** To, či modul ponúka aj funkciu eSIM, závisí od vášho regiónu.
- POZNÁMKA:** Návod na nastavenie pripojenia s použitím karty SIM alebo eSIM v počítači nájdete v *Pokynoch k nastaveniu karty SIM/eSIM pre systém Windows*, ktoré sú súčasťou dokumentácie k vášmu produktu, dostupných na [webovej lokalite podpory firmy Dell](#).

Tabuľka10. Technické informácie o module WWAN

Opis	Hodnoty
Číslo modelu	Qualcomm Snapdragon X72 Global 5G Modem (DW5934e)
Formát	M.2 3052 Key-B
Hostiteľské rozhranie	PCIe Gen3
Sieťový štandard	NR FR1(Sub6) FDD/TDD, LTE FDD/TDD, WCDMA/HSPA+, GPS/GLONASS/Galileo/Beidou
Rýchlosť prenosu údajov	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
Prevádzkové frekvenčné pásma	- 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)
Napájací zdroj	DC 3.135 V to 3.63 V, typical 3.3 V
Karta SIM	Supported through external SIM slot
eSIM s dvomi SIM kartami (DSSA)	Supported
Diverzita antén	Supported
Vysielanie zap./vyp.	Supported
Prebudenie prostredníctvom bezdrôtovej siete	Supported in Morden Standby mode
Teplota	- Normal operating temperature: -30°C to +70°C - Extended operating temperature: -40°C to +85°C - Storage temperature: -40°C to +85°C

Tabuľka10. Technické informácie o module WWAN (pokračovanie)

Opis	Hodnoty
Anténny konektor	• WWAN Main Antenna x 1 • WWAN Diversity Antenna x 1 • 4x4 MIMO Antenna x 2
 POZNÁMKA: Pokyny, ako zistiť číslo IMEI (International Mobile Equipment Identity) počítača, nájdete v databáze poznatkov na webovej lokalite podpory firmy Dell .	

Zvuk

V nasledujúcej tabuľke uvádzame technické informácie o zvukových zariadeniach vášho počítača Dell Pro 14 Premium PA14250.

Tabuľka11. Technické údaje o zvukových zariadeniach

Opis		Hodnoty
Zvukový radič		Cirrus CS42L43 and Cirrus CS35L56
Stereo konverzia		Supported
Integrovaná zvuková karta		High-definition audio
Externá zvuková karta		Universal audio port
Počet reproduktorov		Four
Integrovaný reproduktorový zosilňovač		Supported (audio codec integrated)
Externé ovládanie hlasitosti		Keyboard shortcut controls
Výstup reproduktora:		
	Priemer	2 W
	Špička	2.5 W
Mikrofón		Digital-array microphones in camera assembly

Dátové úložisko

V tejto časti sú uvedené dostupné možnosti úložiska pre počítač 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.

Tabuľka12. Technické údaje úložiska

Typ úložiska	Typ rozhrania	Kapacita
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

Klávesnica

V nasledujúcej tabuľke uvádzame technické informácie o klávesnici vášho počítača Dell Pro 14 Premium PA14250.

Tabuľka13. Technické údaje klávesnice

Opis	Hodnoty
Typ klávesnice	Battery-saving mini LED backlit zero-lattice keyboard
Rozloženie klávesov klávesnice	QWERTY
Počet kláves	- 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
Veľkosť klávesnice	X=18.05 mm key pitch Y=18.05 mm key pitch
Klávesové skratky	Niektoré klávesy na vašej klávesnici majú na sebe dva symboly. Tieto klávesy sa dajú použiť na napísanie alternatívnych znakov alebo na vykonanie sekundárnych funkcií. Ak chcete napísať alternatívny znak, stlačte kláves Shift a požadovaný kláves. Na vykonanie sekundárnych funkcií stlačte kláves Fn a požadovaný kláves. POZNÁMKA: Predvolené správanie funkčných klávesov (F1 – F12) môžete definovať tak, že zmeníte nastavenie Akcie na stlačenie funkčných klávesov v nástroji na nastavenie systému BIOS. POZNÁMKA: Ak Copilot v systéme Windows nie je vo vašom počítači k dispozícii, stlačením tlačidla Copilot spustíte vyhľadávanie systému Windows. Viac informácií o funkcii Copilot v systéme Windows nájdete v databáze poznatkov na webovej lokalite podpory firmy Dell.

Keyboard shortcuts of Dell Pro 14 Premium PA14250

POZNÁMKA: 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 **2**, 2 is typed out; if you press **Shift + 2**, @ is typed out.

The keys F1-F12 at the top row of the keyboard are function keys for multimedia control, as indicated by the icon on the key. Press the function key to enable the task represented by the icon. For example, pressing F1 mutes the audio (see the table below).

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

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

Tabuľka14. 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.

Tabuľka15. 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

Tabuľka15. Secondary behavior (pokračovanie)

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

Kamera

V nasledujúcej tabuľke uvádzame technické informácie o kamere vášho počítača Dell Pro 14 Premium PA14250.

Tabuľka16. Technické údaje kamery

Opis	Hodnoty
Počet kamier	Two
Typ kamery	There are 2 camera options: - IR Camera - IR Camera with Presence Detection (Synaptics)
Umiestnenie kamery	Front camera
Typ snímača kamery	CMOS sensor technology
Rozlíšenie kamery:	
Fotografia	8.0 megapixel
Video	2560x1440 at 30 fps POZNÁMKA: 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.
Rozlíšenie infračervenej kamery:	
Fotografia	0.23 megapixel
Video	640x360 at 30 fps
Diagonálny pozorovací uhol:	
Kamera	88.1 degrees
Infračervená kamera	86.6 degrees

Dotykový panel

V nasledujúcej tabuľke uvádzame technické informácie o dotykovom paneli vášho počítača Dell Pro 14 Premium PA14250.

Tabuľka17. Technické údaje dotykového panela

Opis	Hodnoty
Rozlíšenie dotykového panela:	>300 dpi

Tabuľka17. Technické údaje dotykového panela (pokračovanie)

Opis		Hodnoty
Rozmery dotykového panela		
	Vodorovne	125 mm (4.92 in.)
	Zvislo	75 mm (2.95 in.)
Gestá na dotykovom paneli		Viac informácií o gestách na dotykovom paneli v systéme Windows nájdete v článku databázy poznatkov spoločnosti Microsoft na webovej lokalite podpory firmy 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).

Tabuľka18. 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.)

Tabuľka18. Touchpad specifications (pokračovanie)

Description	Values
Touchpad gestures	For more information about touchpad gestures available on Windows, see the Microsoft Knowledge Base article at Microsoft Support Site .
POZNÁMKA: 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. POZNÁMKA: 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. POZNÁMKA: 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.

Tabuľka19. 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)

Tabuľka19. Power-adapter specifications (pokračovanie)

Description	Option one	Option two	Option three
 VAROVANIE: 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)

 **POZNÁMKA:** 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.

Tabuľka20. 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  POZNÁMKA: 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  POZNÁMKA: 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  POZNÁMKA: Ensure that the computer is connected to a 100 W power adapter for this feature to be supported.  POZNÁMKA: 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)

 **POZNÁMKA:** 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).

Tabuľka21. 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	Less than 100 W

Tabuľka21. Power adapter requirements (pokračovanie)

Description	Value
i POZNÁMKA: A warning message may appear informing you about the use of a lower-powered adapter and slower charging speed.	
Minimum power that is required from a power adapter to operate the computer and charge the battery i POZNÁMKA: 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 i POZNÁMKA: Ensure that the computer is connected to a 100 W power adapter for this feature to be supported. i POZNÁMKA: 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.

Tabuľka22. 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.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.

Tabuľka22. Battery specifications (pokračovanie)

Description	Option one	Option two	Option three	Option four
Battery charging time (approximate)  POZNÁMKA: You can control the charging time, duration, start and end time, and so on, using the settings on the MyDell application (Power option). For more information about MyDell application, search in the Knowledge Base Resource at Dell Support Site.	Express Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 45°C normal express 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	Express Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 45°C normal express 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	Express Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 45°C normal express 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	Express Charge Method: 0 - 15°C maximum allowable charge time from 0 to 100% RSOC is 4 hours 16 - 45°C normal express 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
 VAROVANIE: 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.  VAROVANIE: Dell Technologies recommends that you charge the battery regularly for optimal power consumption.				

Obrazovka

V nasledujúcej tabuľke uvádzame technické informácie o obrazovke počítača Dell Pro 14 Premium PA14250.

Tabuľka23. Technické údaje obrazovky

Opis	Možnosť č. 1	Možnosť č. 2	Možnosť č. 3
Typ obrazovky	Full High Definition Plus (FHD+)	Quad High Definition Plus (QHD+), Battery saving, ComfortView Plus	Full High Definition Plus (FHD+), Battery saving, ComfortView Plus
Konfigurácie s dotykovým displejom	No	Yes	No

Tabuľka23. Technické údaje obrazovky (pokračovanie)

Opis		Možnosť č. 1	Možnosť č. 2	Možnosť č. 3
Technológia panela obrazovky		Wide-viewing angle (WVA/IPS)	OLED	Wide-viewing angle (WVA/IPS)
Rozmery panela obrazovky (aktívna oblasť):				
	Výška	188.50 mm	188.50 mm	188.50 mm
	Šírka	301.60 mm	301.60 mm	301.60 mm
	Uhlopriečka	355.60 mm	355.60 mm	355.60 mm
Natívne rozlíšenie panela obrazovky		1920 x 1200	2880 x 1800	1920x1200
Svietivosť (typická)		300 nits	400 nits	400 nits
Megapixelov		2.3	5.1	2.3
Farebný rozsah		100% sRGB	100% DCIP3	sRGB 100% typ.
Počet pixelov na palec (PPI)		162 ppi	242 ppi	162 ppi
Kontrastný pomer (typický)		800:1	1000000:1	1200:1
Čas odozvy (maximálne)		35 ms	1 ms	35 ms
Obnovovacia frekvencia		30 Hz to 60 Hz	30 Hz to 60 Hz	30 Hz to 60 Hz
Horizontálny zorný uhol		+/- 85 degrees (typ.)	+/- 85 degrees (typ.)	+/- 85 degrees (typ.)
Vertikálny zorný uhol		+/- 85 degrees (typ.)	+/- 85 degrees (typ.)	+/- 85 degrees (typ.)
Rozstup pixelov		0.11 mm x 0.15 mm	0.10 x 0.10 mm	0.15 x 0.15 mm
Príkon (maximálny)		3.68 W	5.63 W	2.50 W
Antireflexný alebo lesklý povrch		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.

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

Tabuľka24. Fingerprint reader specifications

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

Snímač

V nasledujúcej tabuľke uvádzame informácie o snímačoch vášho počítača Dell Pro 14 Premium PA14250.

Tabuľka25. 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)

Integrovaný grafický procesor

V nasledujúcej tabuľke uvádzame technické údaje o integrovanom grafickom procesore, ktorým je vybavený váš počítač Dell Pro 14 Premium PA14250.

Tabuľka26. Integrovaný grafický procesor

Radič	Veľkosť pamäte	Procesor
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.

Tabuľka27. 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

Hardvérové zabezpečenie

V nasledujúcej tabuľke uvádzame informácie o hardvérovom zabezpečení vášho počítača Dell Pro 14 Premium PA14250.

Tabuľka28. 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

Tabuľka28. Hardware security (pokračovanie)

Hardware security
SED (Opal 2.0 only - PCIe Interface)
Windows Hello - Fingerprint Reader (optional)
Mechanical privacy shutter for camera (only for metal laptops)
Chassis Intrusion Detection

Prevádzkové a skladovacie prostredie

V tejto tabuľke uvádzame technické informácie o prostredí vhodnom na prevádzku a skladovanie počítača Dell Pro 14 Premium PA14250.

Hladina vzduchom prenášaných kontaminantov: G1 v súlade s definíciou v norme ISA-S71.04-1985

Tabuľka29. Prostredie počítača

Opis	V prevádzke	Dátové úložisko
Teplotný rozsah	0°C to 35°C (32°F to 95°F)	-40°C to 65°C (-40°F to 149°F)
Relatívna vlhkosť (maximálna)	10% to 90% (non-condensing)	0% to 95% (non-condensing)
Vibrácie (maximum)*	0.66 GRMS	1.30 GRMS
Náraz (maximálny)	110 G†	160 G†
Rozsah prevádzkovej nadmorskej výšky	-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)
 VAROVANIE: Rozsah prevádzkovej a skladovacej teploty jednotlivých komponentov sa môže líšiť, preto sa môže stať, že ak budete zariadenie používať alebo skladovať pri nevhodnej teplote, ovplyvní to výkon niektorých jeho komponentov.		

* Merané pri použití náhodného vibračného spektra, ktoré simuluje prostredie používateľa.

† Merané s polovičným sínusovým impulzom s trvaním 2 ms.

Podmienky poskytovania podpory firmy Dell

Viac informácií o podmienkach poskytovania podpory firmy Dell nájdete v databáze poznatkov na [webovej lokalite podpory firmy Dell](#).

ComfortView Plus

 **VÝSTRAHA:** 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](#).

Servisný úkon v počítači

Bezpečnostné pokyny

Dodržiavaním nasledujúcich bezpečnostných pokynov sa vyhnete prípadnému poškodeniu počítača a aj vy sami budete v bezpečí. Pokiaľ nie je uvedené inak, pred vykonaním ktoréhokoľvek servisného úkonu, ktorý je uvedený v tomto dokumente, by ste si mali preštudovať bezpečnostné informácie dodané spolu s počítačom.

⚠ VÝSTRAHA: Pred servisným úkonom v počítači si prečítajte bezpečnostné pokyny, ktoré ste dostali spolu s ním. Ďalšie osvedčené bezpečnostné postupy nájdete na [domovskej webovej lokalite firmy Dell o súlade s predpismi](#).

⚠ VÝSTRAHA: Pred odstránením krytu alebo panelov odpojte od počítača všetky zdroje napájania. Po servisnom úkone v počítači najskôr namontujte na miesto všetky kryty, panely a skrutky, až potom ho pripojte k elektrickej zásuvke.

⚠ VAROVANIE: Pracovná plocha musí byť rovná, suchá a čistá, aby ste počítač pri servise nepoškodili.

⚠ VAROVANIE: Riešenie problémov a opravy by ste mali vykonávať zásadne v súlade s pokynmi tímu technickej podpory firmy Dell. Poškodenie v dôsledku servisu, ktorý nie je oprávnený spoločnosťou Dell, nespadá pod ustanovenia záruky. Pozrite si bezpečnostné pokyny, ktoré ste dostali spolu s počítačom, prípadne navštívte [domovskú webovú lokalitu spoločnosti Dell o súlade s predpismi](#).

⚠ VAROVANIE: Než sa dotknete akéhokoľvek komponentu vo vnútri počítača, uzemnite sa dotykom nenatretého kovového povrchu - napríklad sa dotknite kovovej zadnej časti počítača. Pri práci sa priebežne dotýkajte nenatretého kovového povrchu, aby ste rozptýlili statickú elektrinu, ktorá by mohla poškodiť komponenty v počítači.

⚠ VAROVANIE: Komponenty a karty držte pri manipulácii za hrany a nedotýkajte sa kolíkov ani kontaktov, aby ste ich nepoškodili.

⚠ VAROVANIE: Pri odpájaní káblov ťahajte za konektor alebo ťahací jazýček, nikdy nie za samotný kábel. Niektoré káble majú konektory s poistnými západkami alebo ručnými skrutkami, ktoré je potrebné uvoľniť pred odpojením kábla. Pri odpájaní káblov neťahajte konektory do strán, aby ste neohli kolíky, ktorými sú vybavené. Pri pripájaní káblov sa uistite, že konektor na kábli je správne orientovaný a zarovnaný s portom.

⚠ VAROVANIE: Stlačte a vysuňte všetky karty z čítačky pamäťových kariet.

⚠ VAROVANIE: S nabíjateľnými lítiovo-iónovými batériami v notebookoch manipulujte opatrne. Nafúknuté batérie by sa nemali používať, ale nahradiť a riadne zlikvidovať.

Pred servisným úkonom v počítači

Postup

1. Uložte a zatvorte všetky otvorené súbory a ukončíte všetky otvorené aplikácie.
2. Vypnite počítač. V prípadoch operačného systému Windows kliknite na možnosť **Štart** >  **Napájanie** > **Vypnúť**.

i POZNÁMKA: Ak používate iný operačný systém, pokyny nájdete v dokumentácii k operačnému systému.

3. Vypnite všetky pripojené periférne zariadenia.
4. Odpojte počítač z elektrickej zásuvky.
5. Od svojho počítača odpojte všetky pripojené sieťové a periférne zariadenia, ako sú klávesnica, myš a monitor.
6. Ak je v počítači vložená pamäťová karta, vyberte ju, a ak je v optickej jednotke nejaký disk, vyberte ho tiež.
7. Prejdite do servisného režimu.

Servisný režim

Servisný režim sa používa na odpojenie napájania bez odpojenia kábla batérie od systémovej dosky pred začiatkom opráv počítača.



VAROVANIE: Ak nie je možné počítač v záujme prepnutia do servisného režimu zapnúť, pokračujte na odpojenie kábla batérie. Na odpojenie kábla batérie postupujte podľa krokov v časti **Demontáž batérie**.



POZNÁMKA: Uistite sa, že počítač máte vypnutý a napájací adaptér je odpojený.

- Stlačte a podržte kláves B a potom na 3 sekundy stlačte tlačidlo napájania, kým sa na obrazovke nezobrazí logo Dell.
- Pokračujte stlačením ľubovoľného klávesu.
- Ak od počítača nebol odpojený napájací adaptér, na obrazovke sa zobrazí výzva, aby ste ho odpojili. Odpojte napájací adaptér a prejdite do servisného režimu stlačením ľubovoľného klávesu. Ak používateľ počítača nenastavil jeho **štítok vlastníctva**, nasledujúci krok sa pri prechode do servisného režimu automaticky preskočí.
- Keď sa na obrazovke zobrazí hlásenie, **či chcete pokračovať**, pokračujte stlačením ľubovoľného klávesu. Systém trikrát krátko zapípa a okamžite sa vypne. Počítač sa vypne a vstúpi do servisného režimu.

Bezpečnostné opatrenia

V tejto časti sú podrobne opísané základné kroky, ktoré je potrebné vykonať pred vykonaním akýchkoľvek pokynov na demontáž.

Pred každým servisným úkonom, ktorý zahŕňa demontáž alebo montáž súčastí, dodržiavajte tieto bezpečnostné opatrenia:

- Vypnite počítač aj všetky pripojené periférne zariadenia.
- Odpojte počítač od napájania zo siete.
- Odpojte od počítača všetky sieťové káble a periférne zariadenia.
- Pri práci vo vnútri použite terénnu servisnú súpravu proti elektrostatickým výbojom, aby sa zariadenie nepoškodilo následkom elektrostatického výboja.
- Po odstránení z počítača položte odstránený komponent na antistatickú podložku.
- Odporúčame nosiť obuv s nevodivými gumenými podrážkami, ktoré znižujú riziko zásahu elektrickým prúdom.
- Odpojením počítača od napájania a stlačením a podržaním tlačidla napájania na 15 sekúnd by sa mala v počítači rozptýliť zvyšková energia nahromadená na systémovej doske.

Pohotovostný režim napájania

Výrobky firmy Dell s pohotovostným režimom napájania treba pred odstránením zadného krytu odpojiť od elektrickej siete. Systémy vybavené pohotovostným režimom napájania sú napájané aj vtedy, keď sú vypnuté. Takéto napájanie umožňuje vzdialené zapnutie počítača (prebudenie prostredníctvom siete LAN) a uvedenie do režimu spánku a ponúka aj ďalšie pokročilé funkcie riadenia spotreby.

Prepojenie (bonding)

Prepojenie je spôsob spojenia dvoch alebo viacerých uzemňovacích vodičov k rovnakému elektrickému potenciálu. Prepojenie sa robí pomocou terénnej servisnej súpravy proti elektrostatickým výbojom. Pri pripájaní uzemňovacieho vodiča dávajte pozor na to, aby ste ho pripojili k holému kovu. Nikdy ho nepripájajte k natretému ani nekovovému povrchu. Uistite sa, že je náramok pevne zapnutý a úplne sa dotýka vašej pokožky. Pred uzemnením seba a zariadenia si zložte všetky šperky, ako sú hodinky, náramky a prstene.

Ochrana proti elektrostatickým výbojom (ESD)

Elektrostatické výboje sú vážnou hrozbou pri manipulácii s elektronickými súčastami, zvlášť v prípade citlivých súčastí, ako sú rozširujúce karty, procesory, pamäťové moduly a systémové dosky. Slabé výboje dokážu poškodiť obvody spôsobom, ktorý nemusí byť zjavný a môže sa prejavovať vo forme opakujúcich sa technických problémov alebo skrátenej životnosti produktu. V odvetví pôsobia tlaky na dosahovanie nižšej spotreby energie a zvýšenú hustotu, preto je ochrana proti elektrostatickým výbojom čoraz vážnejším problémom.

Dva rozpoznané typy poškodenia elektrostatickým výbojom sú kritické a prerušované zlyhania.

- Kritické** – kritické zlyhania predstavujú približne 20 % zlyhaní súvisiacich s elektrostatickými výbojmi. Poškodenie spôsobuje okamžitú a úplnú stratu funkčnosti zariadenia. Príkladom kritického zlyhania je pamäťový modul DIMM, ktorý bol zasiahnutý výbojom statickej elektriny a okamžite začal prejavovať symptóm „Nespustí sa test POST/Žiadny obraz“ vo forme zvukového kódu, ktorý signalizuje chýbajúcu alebo nefunkčnú pamäť.

- **Prerušované** – prerušované zlyhania predstavujú približne 80 % zlyhaní súvisiacich s elektrostatickými výbojmi. Vysoká miera prerušovaných zlyhaní znamená, že väčšinu času pri vzniku poškodenia nedochádza k jeho okamžitému rozpoznaní. Pamäťový modul bol zasiahnutý výbojom statickej elektriny, no dochádza iba k oslabeniu spoja a nevznikajú okamžité vonkajšie prejavy súvisiace s poškodením. Môže trvať celé týždne až mesiace, kým dôjde k roztaveniu spoja. Počas tohto obdobia môže dôjsť k degenerácii integrity pamäte, prerušovaných chýbám pamäte a podobne.

Občasné poruchy nazývané aj latentné alebo „fungovanie s poruchou“ sa ťažko zisťujú a odstraňujú.

Postupujte podľa nasledujúcich krokov, aby ste predišli poškodeniu elektrostatickým výbojom:

- Používajte antistatický náramok, ktorý bol riadne uzemnený. Bezdrôtové antistatické náramky neposkytujú adekvátnu ochranu. Dotknutím sa šasi pred manipuláciou so súčastami nezaistíte primeranú ochranu proti elektrostatickým výbojom na dieloch so zvýšenou citlivosťou na poškodenie elektrostatickým výbojom.
- Manipulujte so všetkými dielmi citlivými na statickú elektrinu na bezpečnom mieste. Ak je to možné, používajte antistatické podložky na podlahe a podložky na pracovnom stole.
- Pri rozbalovaní staticky citlivého komponentu z prepravného kartónu odstráňte antistatický obalový materiál až bezprostredne pred inštalovaním komponentu. Pred rozbalením antistatického obalu použite antistatický pásik na zápästie, aby ste odstránili statickú elektrinu z tela. Ďalšie informácie o náramku na zápästie a testerí náramkov ESD nájdete v časti [Komponenty súpravy pre terénny servis ESD](#).
- Pred prepravou komponentu citlivého na statickú elektrinu používajte antistatický obal.

Prenosná antistatická servisná súprava

Nemonitorovaná prenosná antistatická súprava je najčastejšie používanou servisnou súpravou. Každá prenosná servisná súprava obsahuje tri hlavné súčasti: antistatickú podložku, náramok a spojovací drôt.

 **VAROVANIE:** Je veľmi dôležité, aby sa zariadenia citlivé na elektrostatický výboj nachádzali mimo vnútorných častí, ktoré sú izolátormi a často sú vysoko nabité, ako napríklad plastové kryty chladičov.

Pracovné prostredie

Pred použitím prenosnej antistatickej servisnej súpravy vždy najskôr zhodnoťte situáciu u zákazníka. Rozloženie súpravy napríklad pri práci so serverom bude iné ako v prípade stolového počítača alebo notebooku. Servery sú zvyčajne uložené v stojanoch v dátovom centre, stolové počítače alebo notebooky zasa bývajú položené na stoloch v kancelárii. Na prácu sa vždy snažte nájsť priestrannú rovnú pracovnú plochu, kde vám nebude nič zavádzať a budete mať dostatok priestoru na rozloženie antistatickej súpravy aj manipuláciu s počítačom, ktorý budete opravovať. Pracovný priestor by takisto nemal obsahovať izolátory, ktoré môžu spôsobiť elektrostatický výboj. Ešte pred tým, ako začnete manipulovať s niektorou hardvérovou súčasťou zariadenia, presuňte v pracovnej oblasti všetky izolátory, ako sú napríklad polystyrén a ďalšie plasty, do vzdialenosti najmenej 30 centimetrov (12 palcov) od citlivých súčastí.

Antistatické balenie

Všetky zariadenia citlivé na elektrostatický výboj sa musia dodávať a preberať v antistatickom balení. Preferovaným balením sú kovové vrecká s antistatickým tienením. Poškodenú súčasť by ste mali vždy poslať späť zabalenú v tom istom antistatickom vrecku a balení, v ktorom vám boli dodané. Antistatické vrecko by malo byť prehnuté a zalepené a do škatule, v ktorej bola nová súčasť dodaná, treba vložiť všetok penový baliaci materiál, čo v nej pôvodne bol. Zariadenia citlivé na elektrostatické výboje by sa mali vyberať z balenia iba na pracovnom povrchu, ktorý je chránený proti elektrostatickým výbojom a súčasti zariadení by sa nikdy nemali klať na antistatické vrecko, pretože vrecko chráni iba zvnútra. Súčasti zariadení držte v ruke alebo ich môžete odložiť na antistatickú podložku, do počítača alebo antistatického vrecka.

Súčasti servisnej antistatickej súpravy

Medzi súčasti servisnej antistatickej súpravy patria:

- **Antistatická podložka** – antistatická podložka je vyrobená z disipatívneho materiálu, takže na ňu pri servisných úkonoch možno odložiť súčasti opravovaného zariadenia. Pri používaní antistatickej podložky náramok by ste mali mať pripevnený na ruku a spojovací drôt by mal byť pripojený k antistatickej podložke a obnaženej kovovej ploche v počítači, na ktorom pracujete. Po splnení tohto kritéria možno náhradné súčasti vybrať z vrečka na ochranu proti elektrostatickým výbojom a položiť ich priamo na antistatickú podložku. Predmety citlivé na elektrostatické výboje sú v bezpečí, keď ich držíte v rukách, sú na antistatickej podložke, v počítači alebo vo vrecku.
- **Náramok a spojovací drôt** – náramok a spojovací drôt môžu byť spojené priamo medzi zápästím a obnaženou kovovou plochou na hardvéri, ak sa nevyžaduje antistatická podložka, alebo môžu byť pripojené k antistatickej podložke, aby chránili hardvér, ktorý na ňu dočasne položíte. Fyzickému spojeniu náramku a spojovacieho drôtu medzi pokožkou, antistatickou podložkou a hardvérom sa hovorí

prepojenie. Používajte iba také servisné súpravy, ktoré obsahujú náramok, antistatickú podložku aj spojovací drôt. Nikdy nepoužívajte bezdrôtové náramky. Pamätajte, prosím, na to, že drôty v náramku sa bežným používaním opotrebovávajú, preto ich treba pravidelne kontrolovať pomocou nástroja na testovanie náramkov, inak by mohlo dôjsť k poškodeniu hardvéru elektrostatickým výbojom. Test náramku a spojovacieho drôtu odporúčame vykonávať aspoň raz týždenne.

- **Nástroj na testovanie antistatického náramku** – drôty v náramku sa môžu časom poškodiť. Pri používaní nemonitorovanej súpravy by ste mali náramok pravidelne pred každou servisnou návštevou a minimálne raz týždenne otestovať. Náramok možno najlepšie otestovať pomocou nástroja na testovanie antistatického náramku. Samotný test sa robí nasledovne: na zápästie si pripevníte náramok, spojovací drôt náramku zapojte do nástroja na testovanie a stlačte tlačidlo. Ak test dopadne úspešne, rozsvieti sa zelená kontrolka LED. Ak dopadne neúspešne, rozsvieti sa červená kontrolka LED a zaznie zvuková výstraha.

POZNÁMKA: Pri každom servise produktov firmy Dell odporúčame vždy používať klasický uzemňovací náramok s drôtom proti elektrostatickým výbojom a ochrannú antistatickú podložku. Okrem toho je pri servise počítača veľmi dôležité, aby boli citlivé časti oddelené od všetkých izolovaných častí.

Preprava komponentov citlivých na ESD

Pri preprave komponentov citlivých na elektrostatické výboje, ako sú napríklad náhradné súčasti alebo súčasti, ktoré majú byť vrátené firme Dell, je veľmi dôležité používať antistatické obaly.

Po dokončení práce v počítači

O tejto úlohe

VAROVANIE: Voľné alebo uvoľnené skrutky vo vnútri počítača môžu vážne poškodiť počítač.

Postup

1. Zaskrutkujte všetky skrutky a uistite sa, že v počítači nezostali žiadne voľné skrutky.
2. Pripojte k počítaču všetky externé zariadenia, periférne zariadenia a káble, ktoré ste odpojili pred servisným úkonom.
3. Vložte späť pamäťové karty, disky, prípadné iné diely, ktoré ste z počítača odstránili pred servisným úkonom.
4. Pripojte počítač do elektrickej zásuvky.

POZNÁMKA: Ak chcete ukončiť servisný režim, uistite sa, že ste pripojili sieťový adaptér k portu napájacieho adaptéra na počítači.

5. Stlačením tlačidla napájania zapnite počítač.

BitLocker

VAROVANIE: Ak pred aktualizáciou systému BIOS nevypnete nástroj BitLocker, kľúč nástroja BitLocker sa pri ďalšom reštartovaní počítača nerozpozná. Potom sa zobrazí výzva na zadanie obnovovacieho kľúča, bez ktorého nie je možné pokračovať, pričom systém zobrazí žiadosť o zadanie kľúča po každom reštartovaní. V prípade, že kľúč nepoznáte, môžete prísť o svoje údaje alebo budete musieť preinštalovať operačný systém. Viac informácií nájdete v tomto článku [databázy poznatkov: Aktualizácia systému BIOS v systémoch Dell s aktivovaným nástrojom BitLocker \(v angličtine\)](#)

Nástroj BitLocker sa aktivuje po namontovaní týchto komponentov:

- pevný disk alebo disk SSD;
- Systémová doska

Odporúčané nástroje

Postupy uvedené v tomto dokumente môžu vyžadovať použitie nasledujúcich nástrojov:

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

Zoznam skrutiek

- POZNÁMKA:** Pri vyberaní skrutiek z jednotlivých súčastí počítača odporúčame, aby ste si poznačili typ a počet skrutiek a po vybratí ich odložili do škatuľky na skrutky. Vďaka tomu budete mať pri spätnej montáži komponentov istotu, že ste zaskrutkovali späť správny typ a počet skrutiek.
- POZNÁMKA:** Časti niektorých počítačov sú magnetické. Pri spätnej montáži jednotlivých súčastí počítača dávajte pozor, aby na nich skrutky neostávali položené.
- POZNÁMKA:** Farba skrutky sa môže líšiť v závislosti od objednanej konfigurácie.

Tabuľka30. Screw list

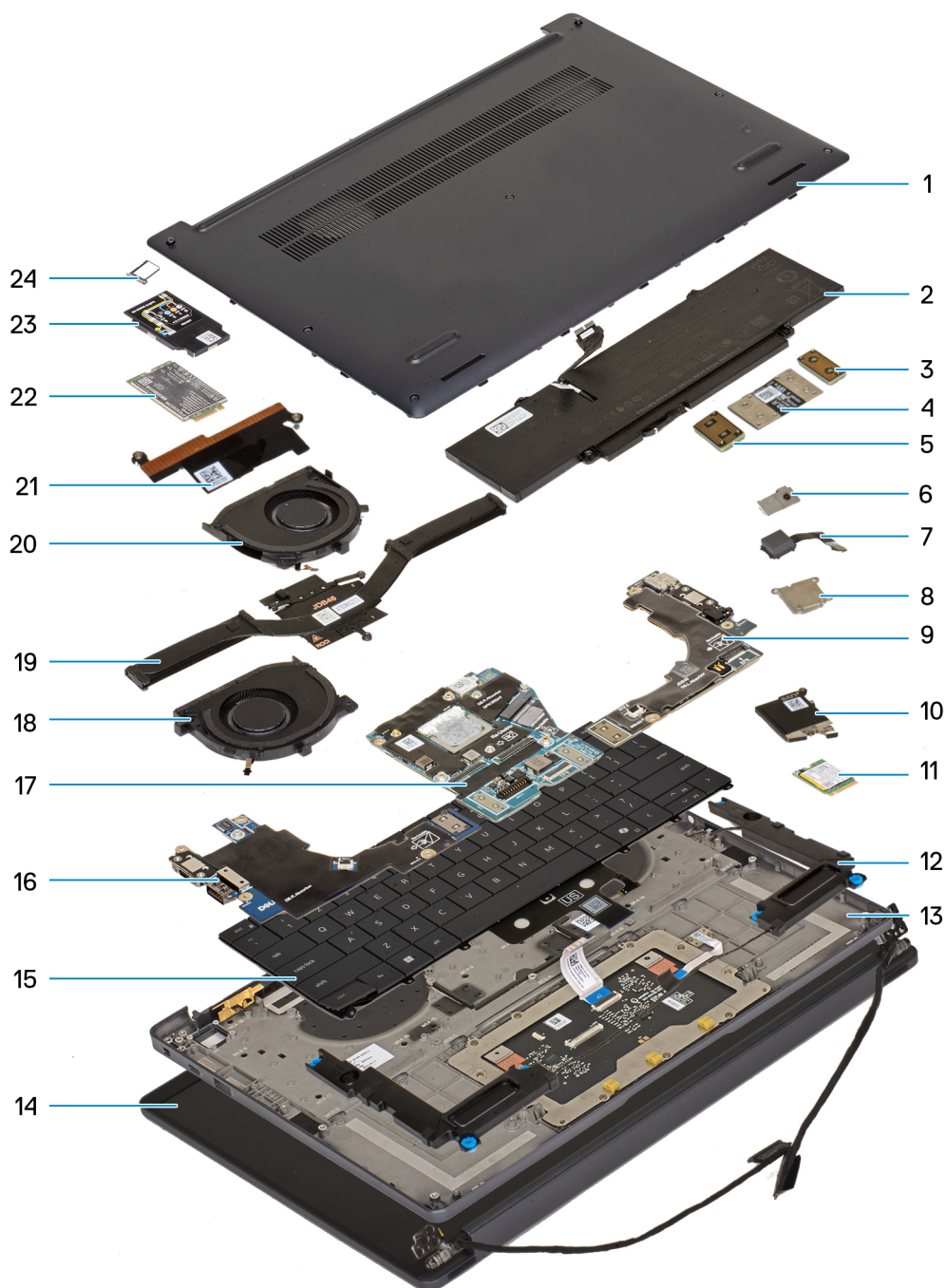
Component	Screw type	Quantity	Screw image
Base cover	M2.5x7 (Captive screw)	7	
Solid state drive (SSD) shield	M1.6x2 (Captive screw)	2	
WLAN bracket	M1.6x5.5 (Captive screw)	1	
Battery	M2x4.5 (Captive screw)	4	
WWAN-card bracket	M1.6x2.3 (Captive screw)	1	
Right fan	M1.6x3	2	
Left fan	M1.6x3	2	
Heat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

Tabuľka30. Screw list (pokračovanie)

Component	Screw type	Quantity	Screw image
Display hinges	M2.5x5	6	
System board	M1.6x2.5	1	
Keyboard	M1.4x1.2	18	
	M1.6x2	7	

Hlavné komponenty počítača Dell Pro 14 Premium PA14250

Na nasledujúcich obrázkoch sú znázornené hlavné komponenty počítača Dell Pro 14 Premium PA14250.



Obrázok 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

 **POZNÁMKA:** 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.

Demontáž a montáž jednotiek vymeniteľných zákazníkom (CRU)

Vymeniteľné komponenty uvedené v tejto kapitole sú jednotky, ktoré môžu vymieňať zákazníci (CRU).

 **VAROVANIE:** Zákazníci môžu vymeniť iba jednotky vymeniteľné zákazníkom (CRU) podľa bezpečnostných opatrení a postupov výmeny.

 **POZNÁMKA:** Ilustrácie v tomto dokumente na môžu líšiť od vášho počítača v závislosti od vami objednanej konfigurácie.

nano-SIM card tray

Removing the nano-SIM card tray

Požiadavky

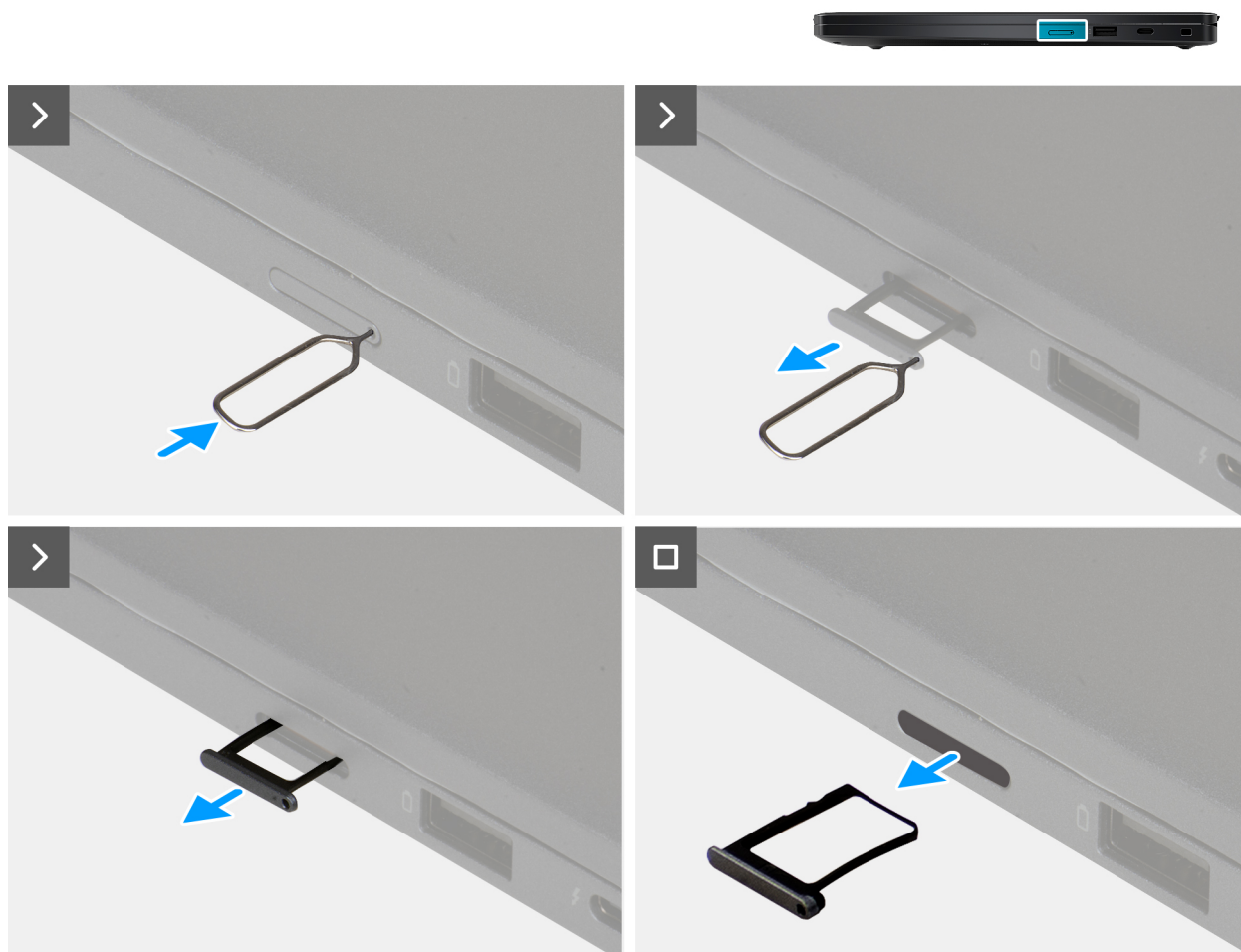
1. Follow the procedure in [Before working inside your computer](#).

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

O tejto úlohe

 **POZNÁMKA:** 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.



Obrázok 10. Removing the nano-SIM card tray

Postup

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.

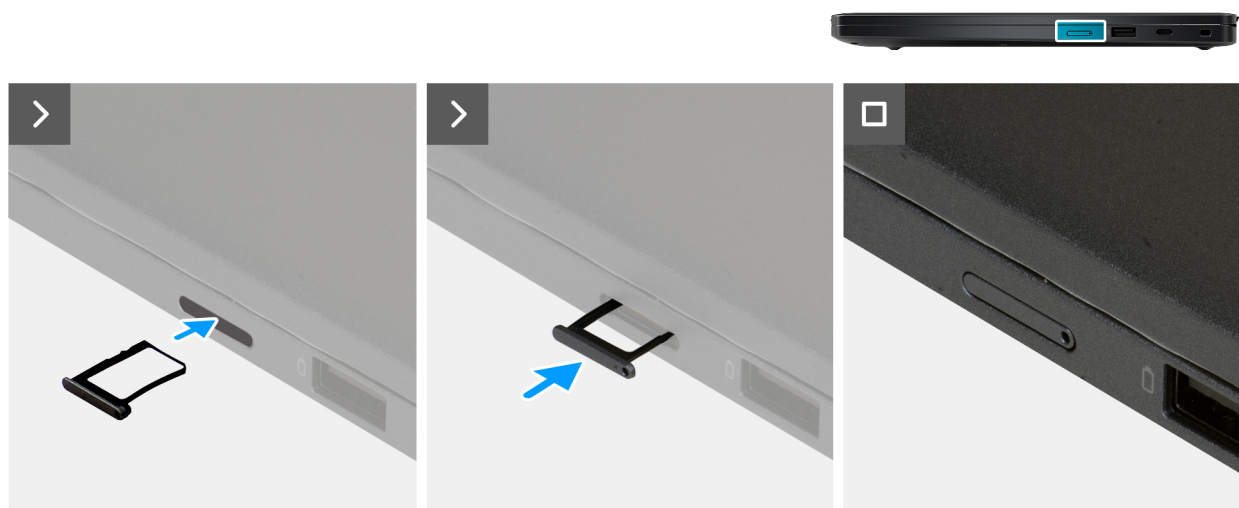
Installing the nano-SIM card tray

Požiadavky

Ak sa chystáte vymeniť niektorý komponent počítača, pred montážou podľa krokov v príslušnom návode najskôr z počítača odstráňte komponent, ktorý chcete nahradiť.

O tejto úlohe

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



Obrázok 11. Installing the nano-SIM card tray

Postup

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

Ďalší postup

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

nano-SIM card

Removing the nano-SIM card

Požiadavky

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

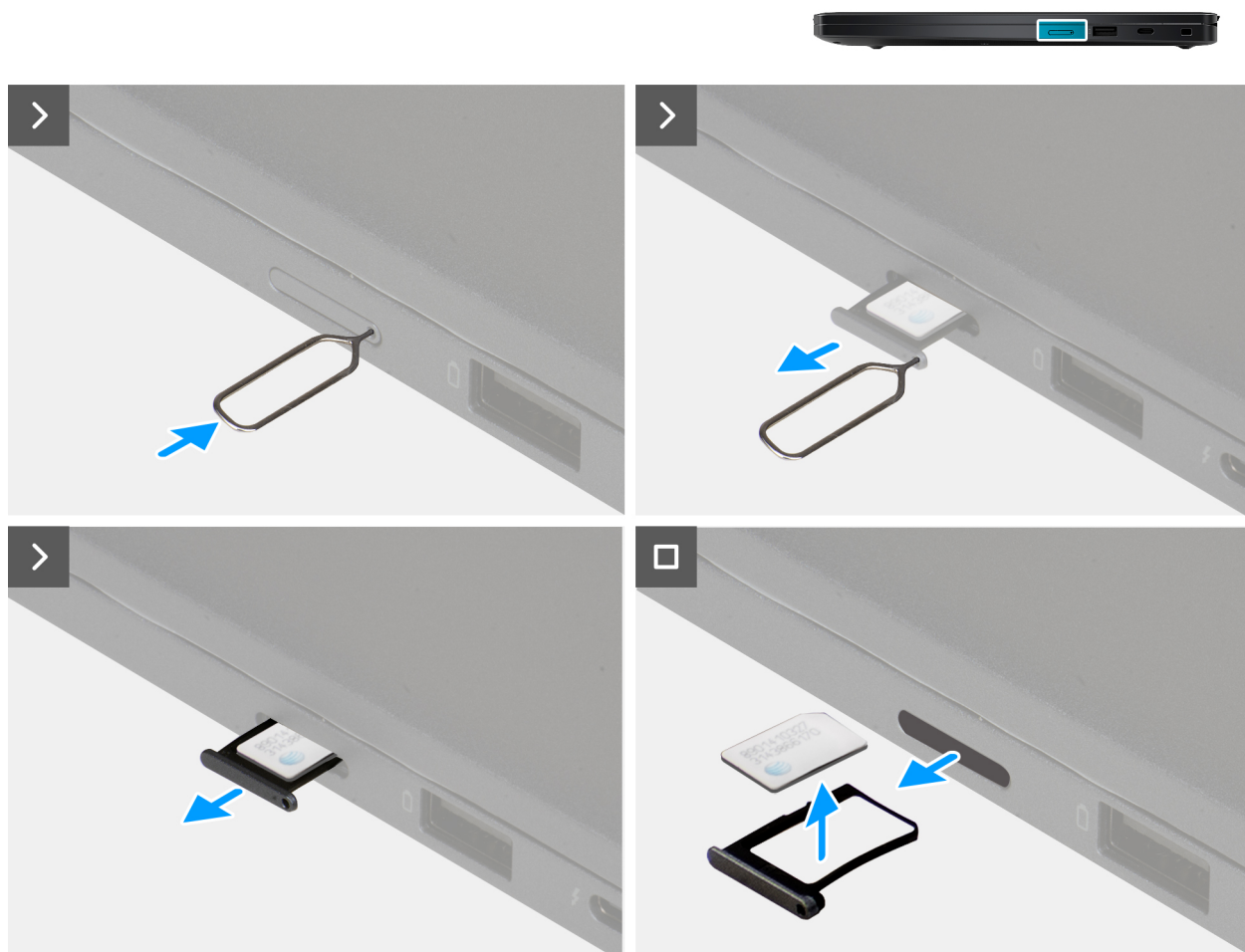
POZNÁMKA: Ensure that your computer is in Service Mode. For more information, see [Before working inside your computer](#).

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

VAROVANIE: 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.

O tejto úlohe

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



Obrázok 12. Removing the nano-SIM card

Postup

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.

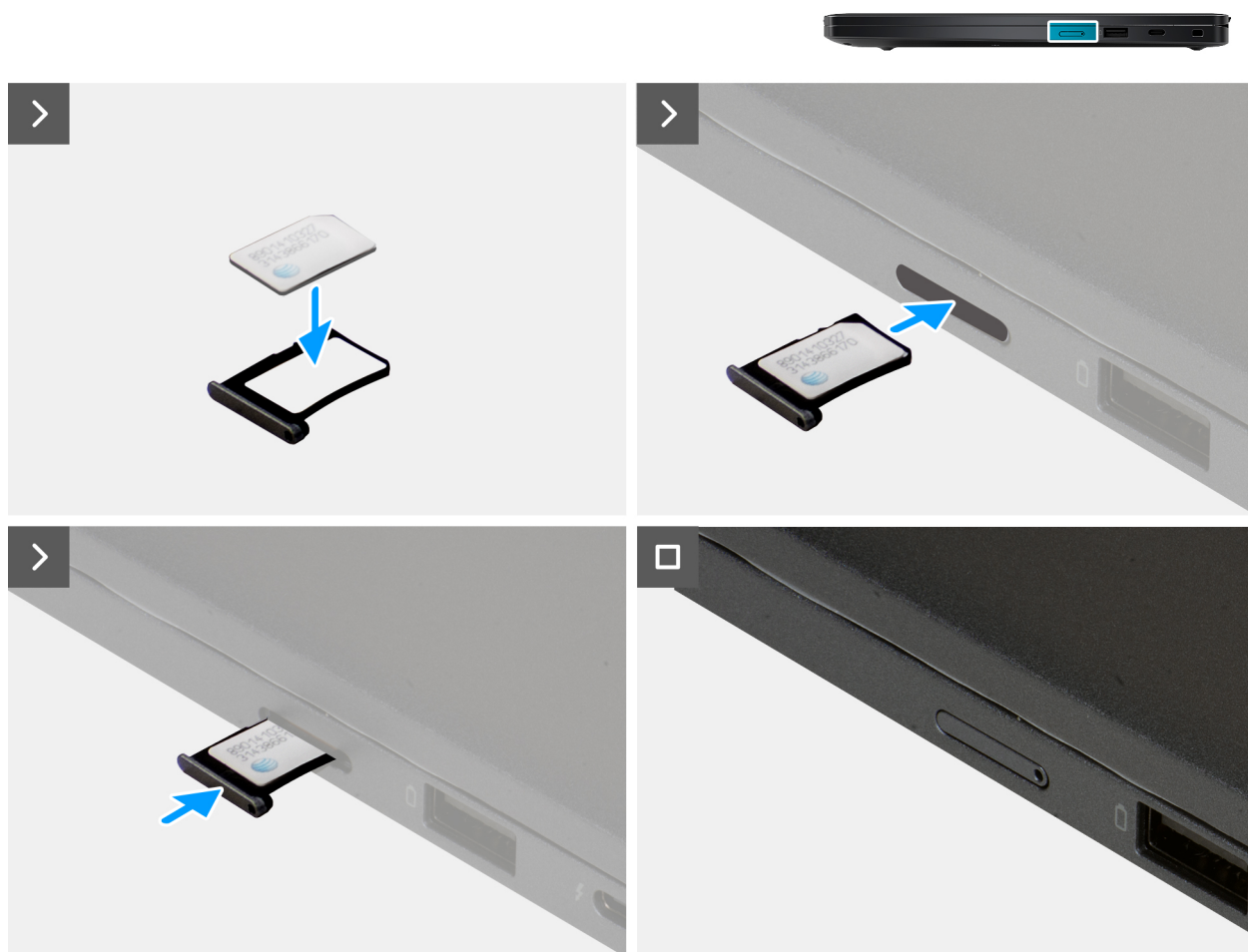
Installing the nano-SIM card

Požiadavky

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

O tejto úlohe

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



Obrázok 13. Installing the nano-SIM card

Postup

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.

Ďalší postup

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

Spodný kryt

Removing the base cover

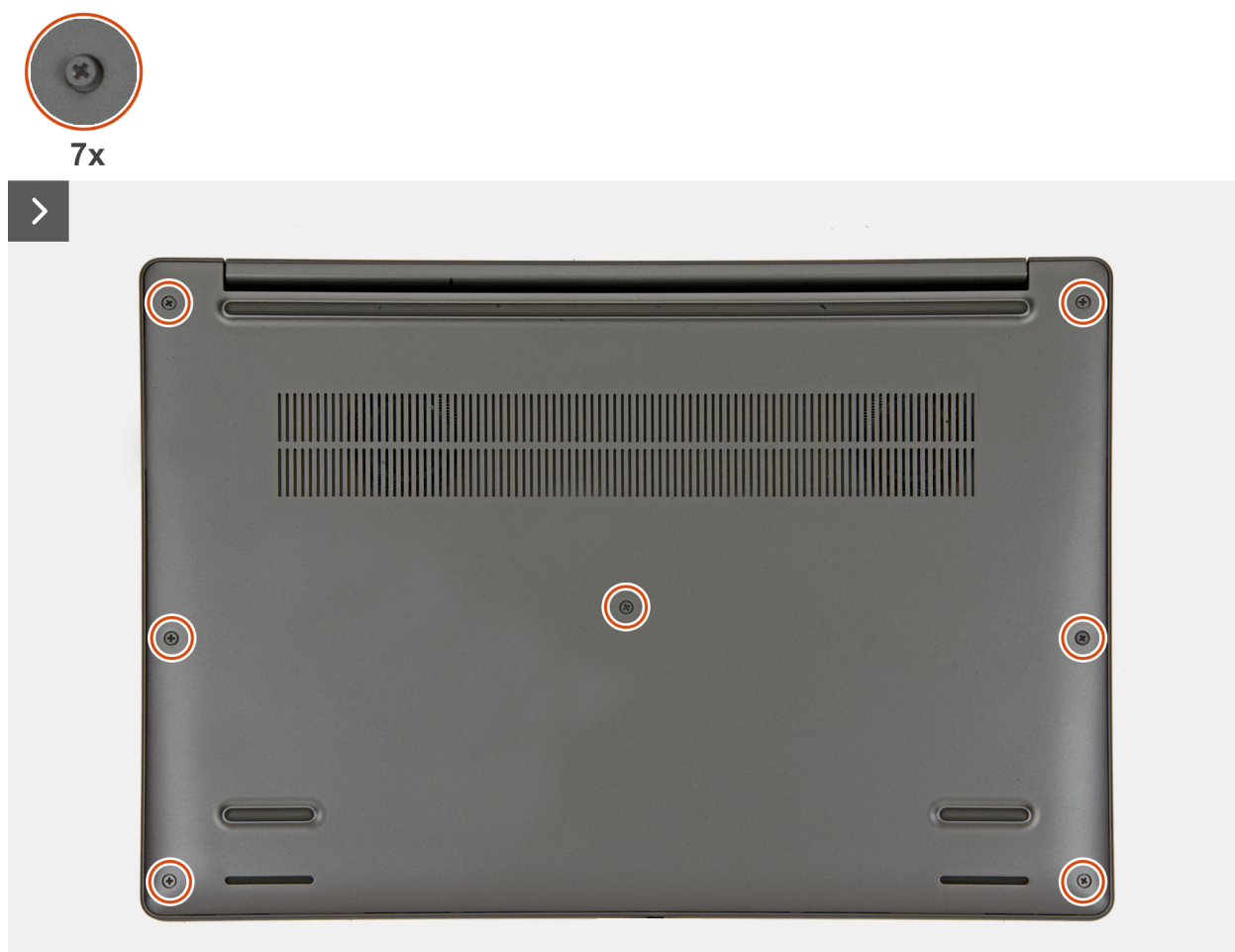
Požiadavky

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

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

O tejto úlohe

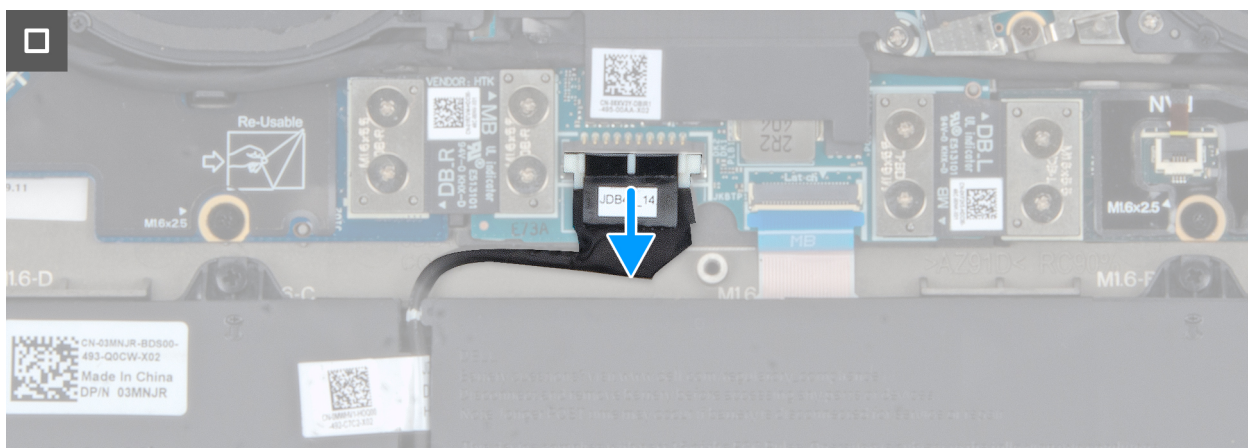
The following images indicate the location of the base cover and provide a visual representation of the removal procedure.



Obrázok 14. Loosen the captive screws



Obrázok 15. Removing the base cover



Obrázok 16. Disconnect the battery cable from the system board

Postup

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.
 - VAROVANIE:** 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.
 - VAROVANIE:** 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.

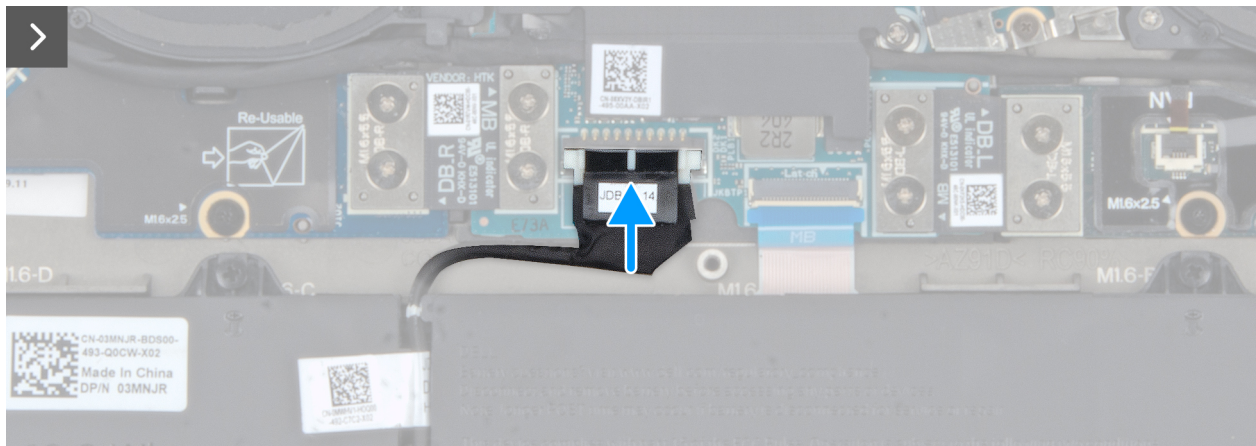
Installing the base cover

Požiadavky

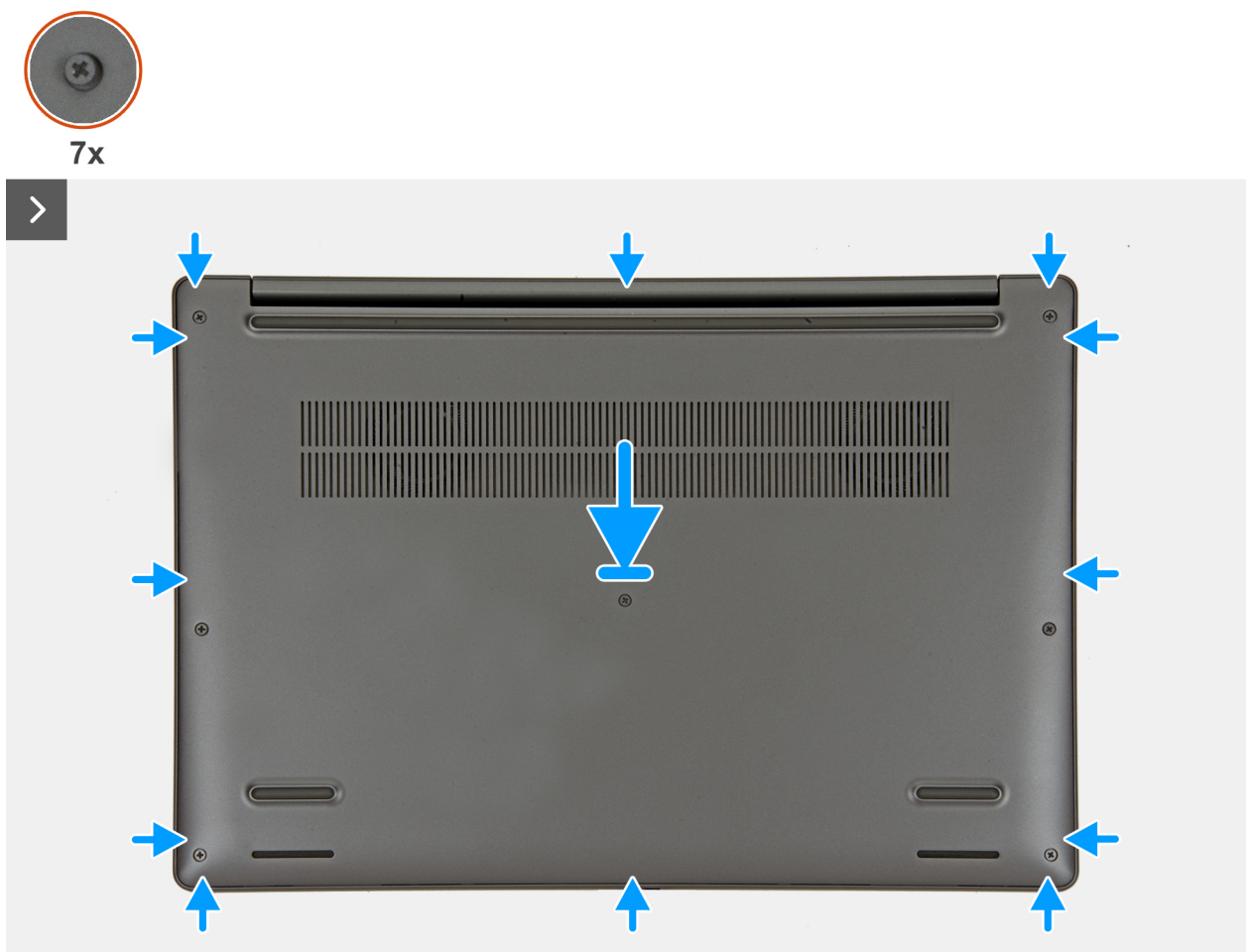
If you are replacing a component, remove the existing component before performing the installation procedure.

O tejto úlohe

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



Obrázok 17. Connect the battery battery cable to the system board



Obrázok 18. Installing the base cover



Obrazok 19. Tighten the captive screws

Postup

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.

Ďalší postup

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

Batéria

Bezpečnostné opatrenia týkajúce sa nabíjateľnej lítiovo-iónovej batérie

⚠ VAROVANIE:

- S nabíjateľnými lítiovo-iónovými batériami manipulujte opatrne.
- Batériu pred demontážou úplne vybite. Odpojte od počítača napájací adaptér a nechajte počítač zapnutý dovtedy, kým sa batéria nevybije. Batéria je úplne vybitá vtedy, keď sa už počítač po stlačení tlačidla napájania nezapne.
- Batériu nijako nedeformujte, nehádzte na zem, nepoškodzujte ani neprepichujte.
- Batériu nevystavujte vysokým teplotám a nerozoberajte články, z ktorých pozostáva.
- Na povrch batérie netlačte.
- Batériu neohýbajte.
- Batériu nepáčte zo zariadenia žiadnymi nástrojmi.

- Zaistite, aby sa počas servisu tohto produktu nestratili alebo nesprávne neumiestnili žiadne skrutky, aby ste predišli náhodnému prepichnutiu alebo poškodeniu batérie a iných komponentov.
- Ak sa batéria nafúkne a zostane v počítači zaseknutá, nepokúšajte sa ju z neho vybrať, pretože prepichnutie, ohnutie alebo zdeformovanie nabíjateľnej lítiovo-iónovej batérie môže byť nebezpečné. Namiesto toho sa obráťte na oddelenie technickej podpory firmy Dell a požiadajte o pomoc. Pozrite si časť [Ako kontaktovať podporu na webovej lokalite podpory firmy Dell](#).
- Vždy nakupujte iba originálne batérie na [webovej lokalite firmy Dell](#) alebo od autorizovaných partnerov a predajcov firmy Dell.
- Nafúknuté batérie by sa nemali používať, ale nahradiť a riadne zlikvidovať. Pokyny, ako manipulovať s nafúknutými nabíjateľnými lítiovo-iónovými batériami a vymieňať ich, nájdete v časti [Manipulácia s nafúknutými nabíjateľnými lítiovo-iónovými batériami](#).

Removing the battery

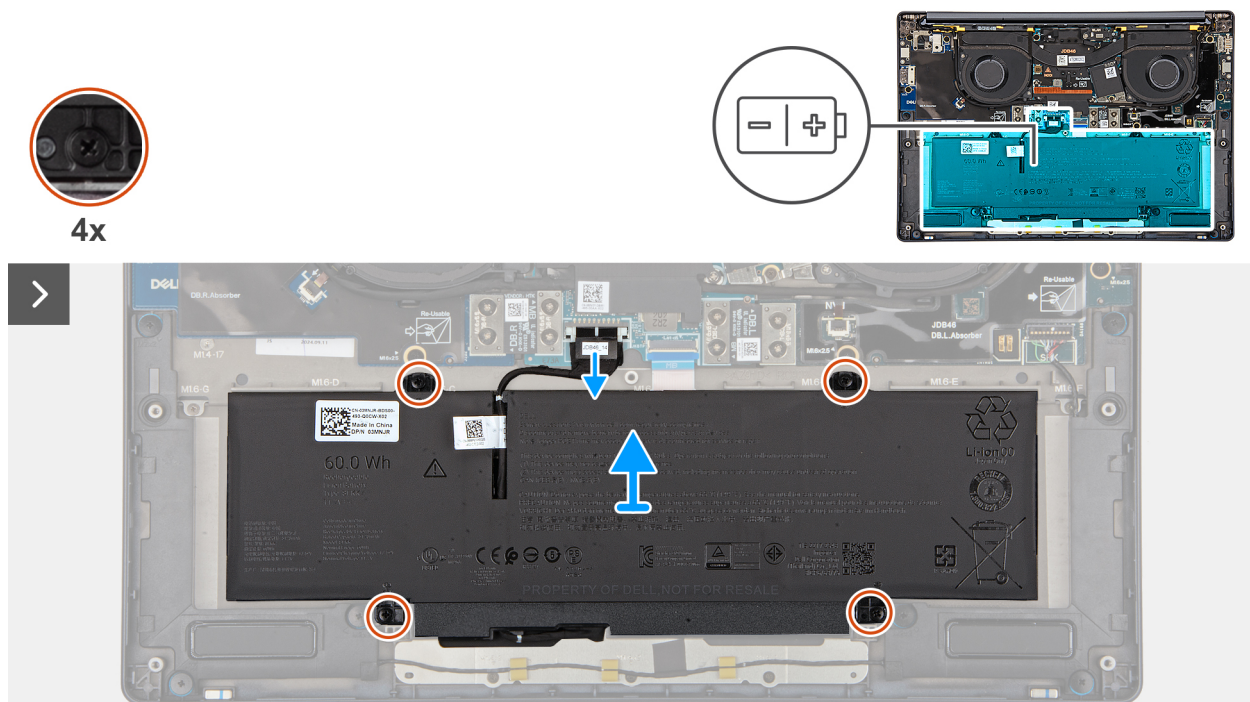
Požiadavky

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

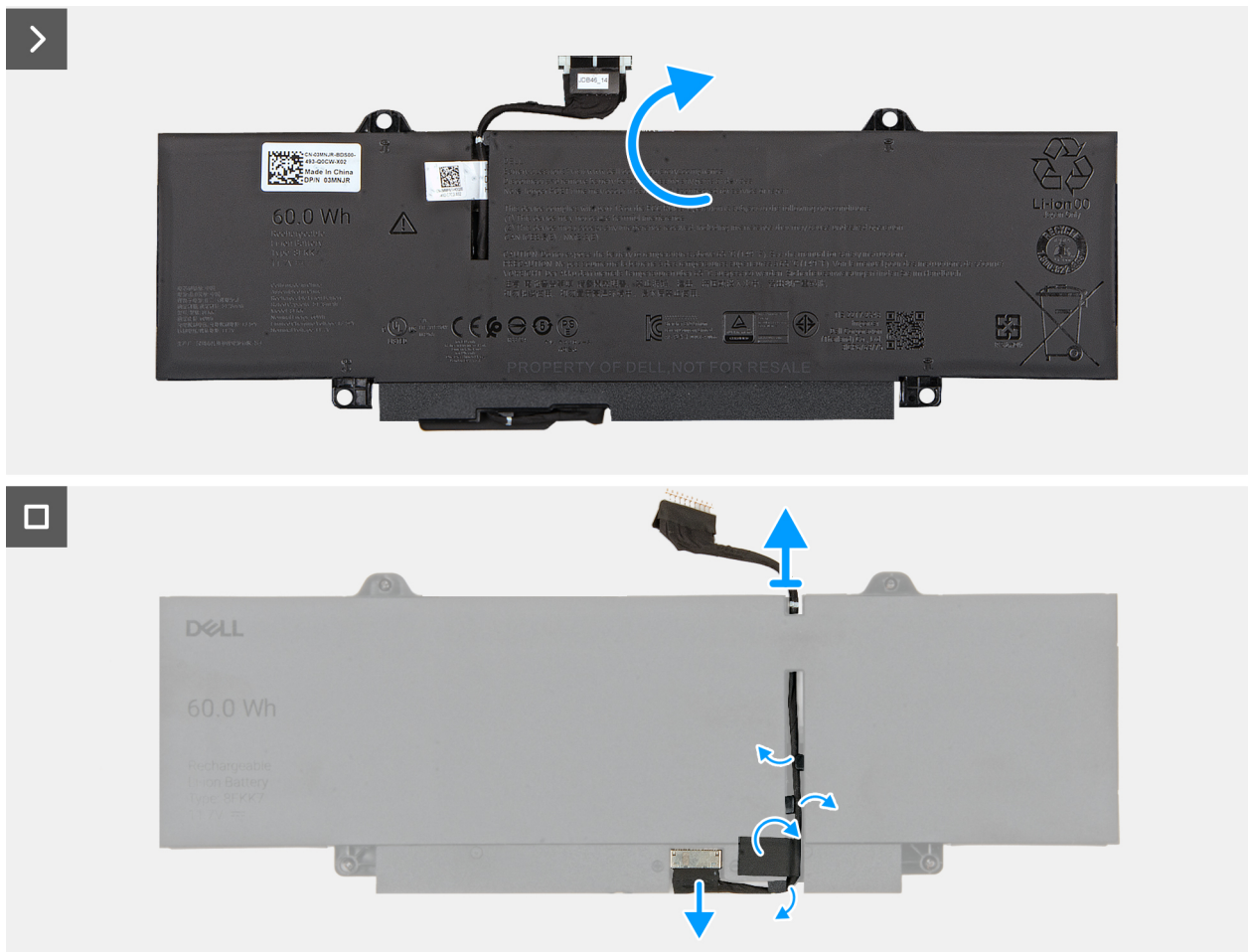
O tejto úlohe

VAROVANIE: 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.



Obrázok 20. Loosen the captive screws



Obrázok 21. Removing the battery and disconnecting the battery cable

Postup

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.

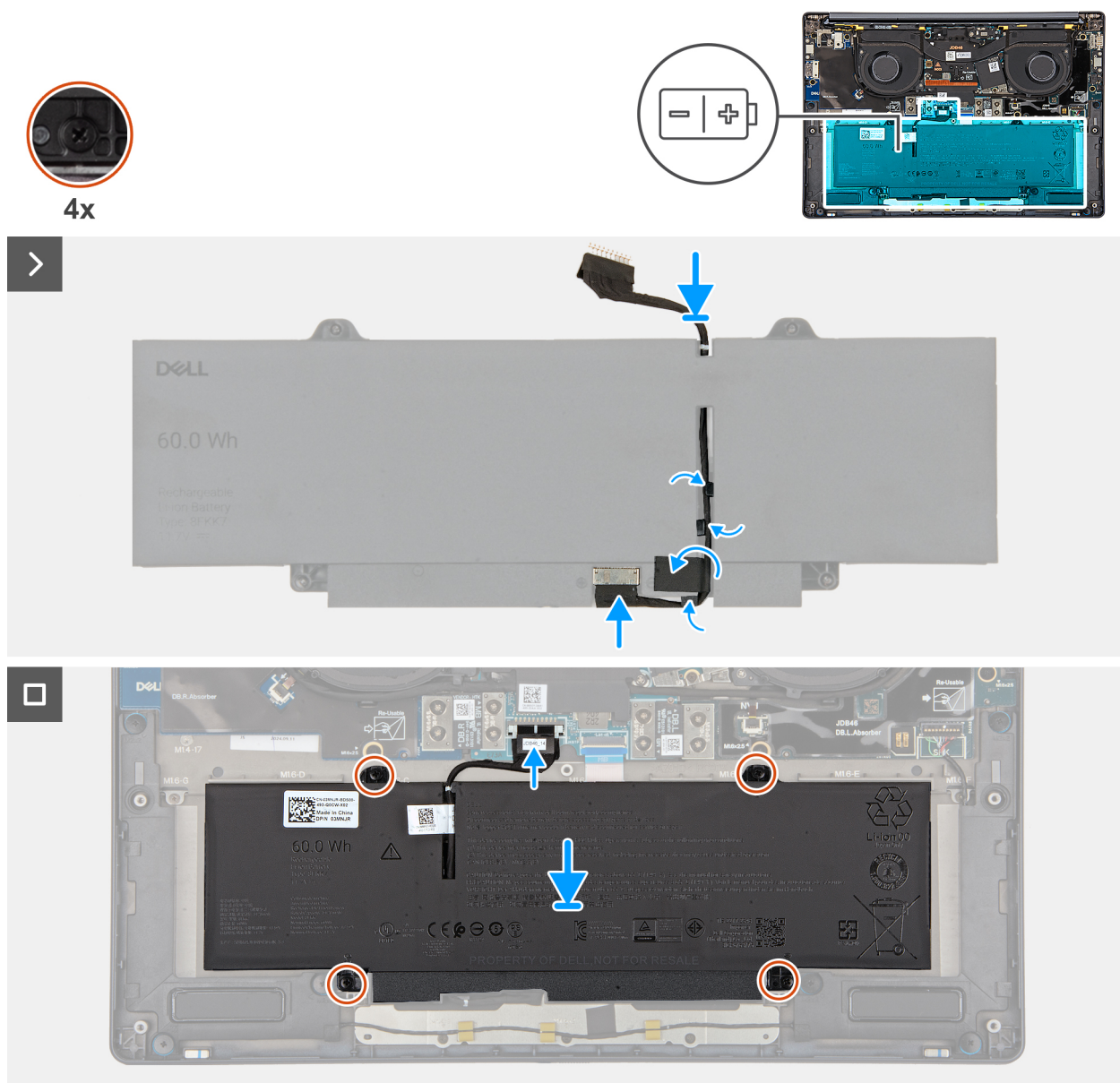
Installing the battery

Požiadavky

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

O tejto úlohe

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



Obrázok 22. Installing the battery

Postup

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.

Ďalší postup

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

Disk SSD (Solid State Drive)

Removing the M.2 2230 solid state drive

Požiadavky

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

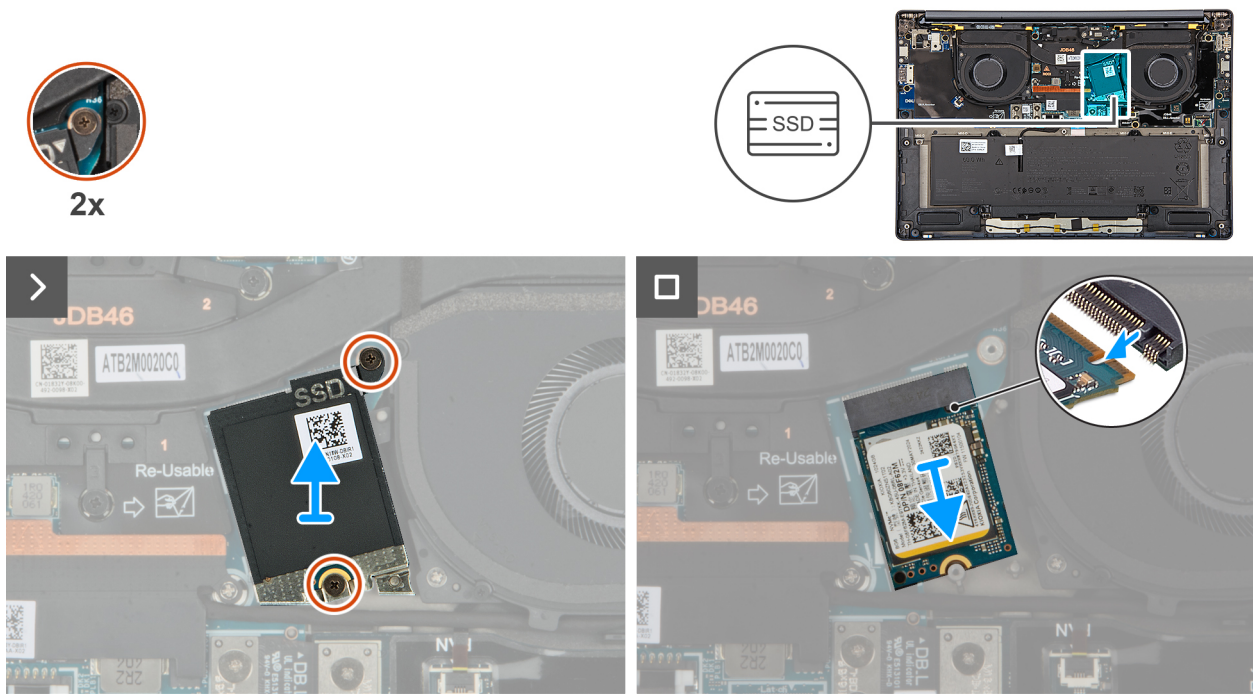
POZNÁMKA: Solid state drives are fragile. Exercise care when handling the solid state drive.

POZNÁMKA: 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](#).

O tejto úlohe

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



Obrázok 23. Removing the SSD

Postup

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.

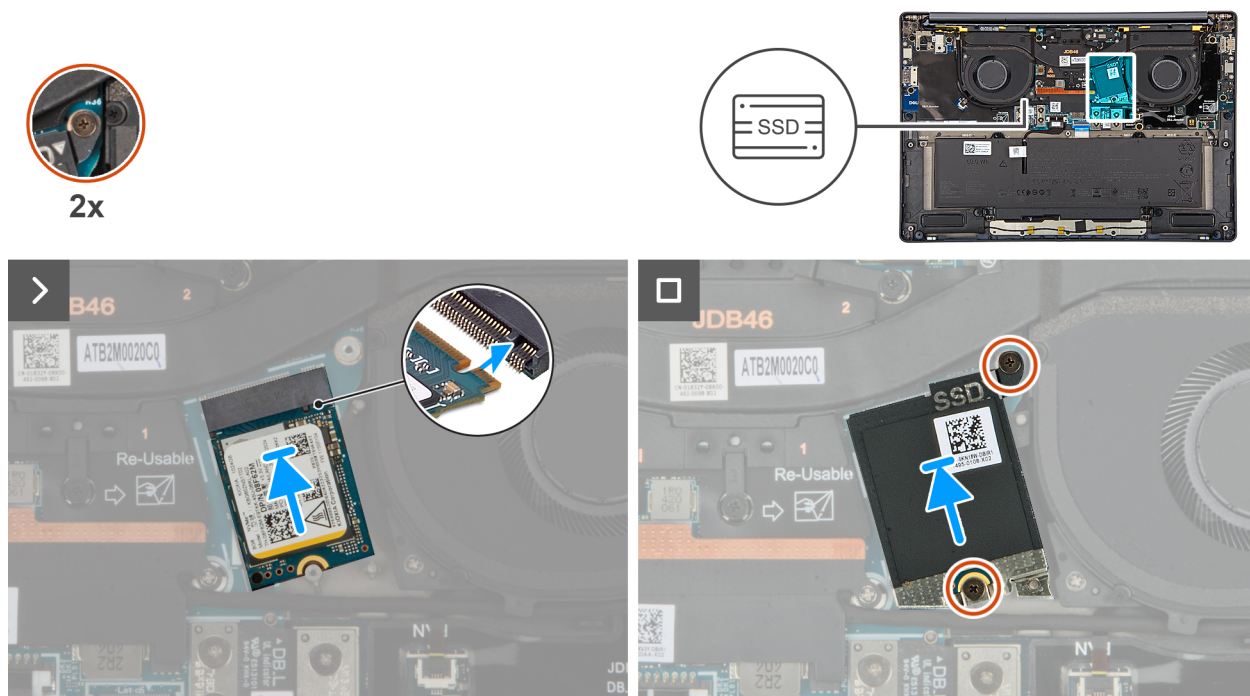
Installing the M.2 2230 solid state drive

Požiadavky

Ak sa chystáte vymeniť niektorý komponent počítača, pred montážou podľa krokov v príslušnom návode najskôr z počítača odstráňte komponent, ktorý chcete nahradiť.

O tejto úlohe

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



Obrázok 24. Installing the SSD

Postup

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.

Ďalší postup

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.

 **POZNÁMKA:** 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](#).

Karta WWAN (Wireless Wide Area Network)

Removing the WWAN card

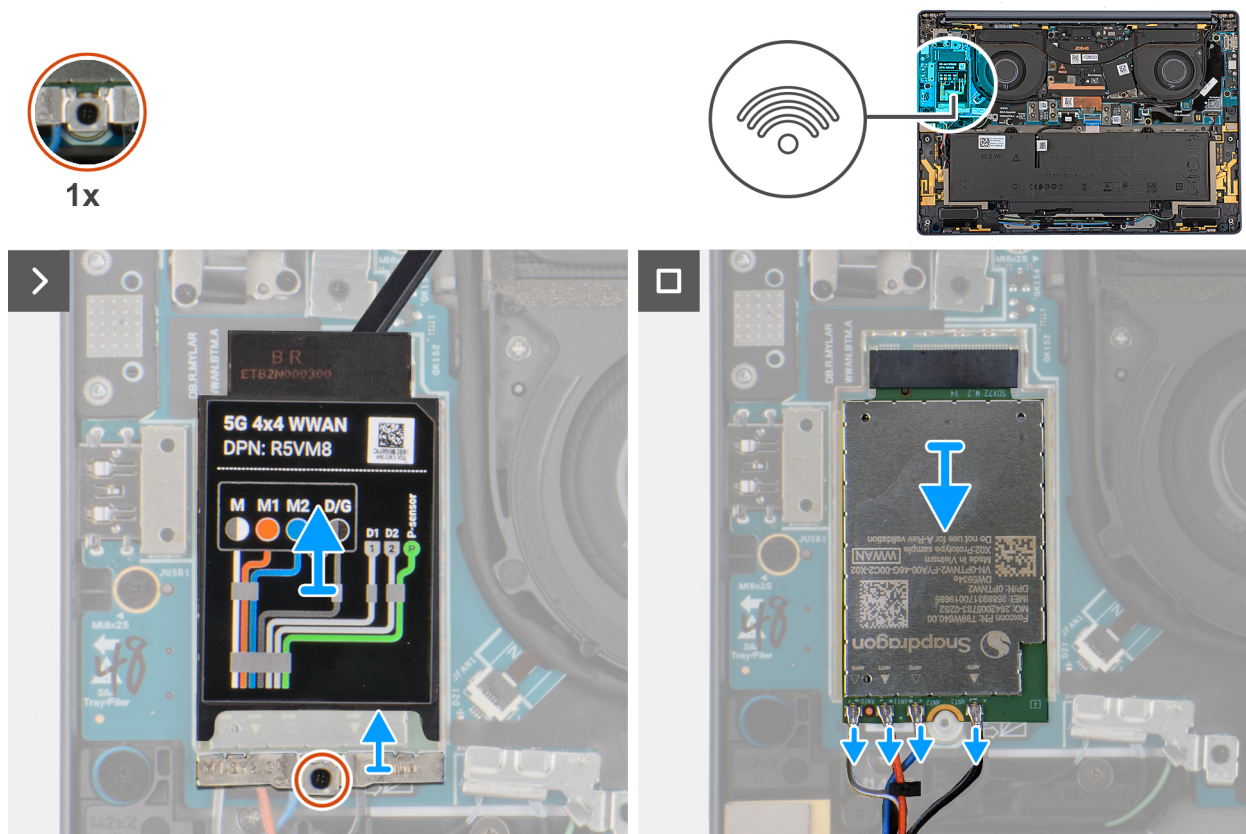
Požiadavky

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](#).

O tejto úlohe

- POZNÁMKA:** This procedure applies only to computers shipped with a WWAN card installed.
- POZNÁMKA:** 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.



Obrázok 25. Removing the WWAN card

Postup

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

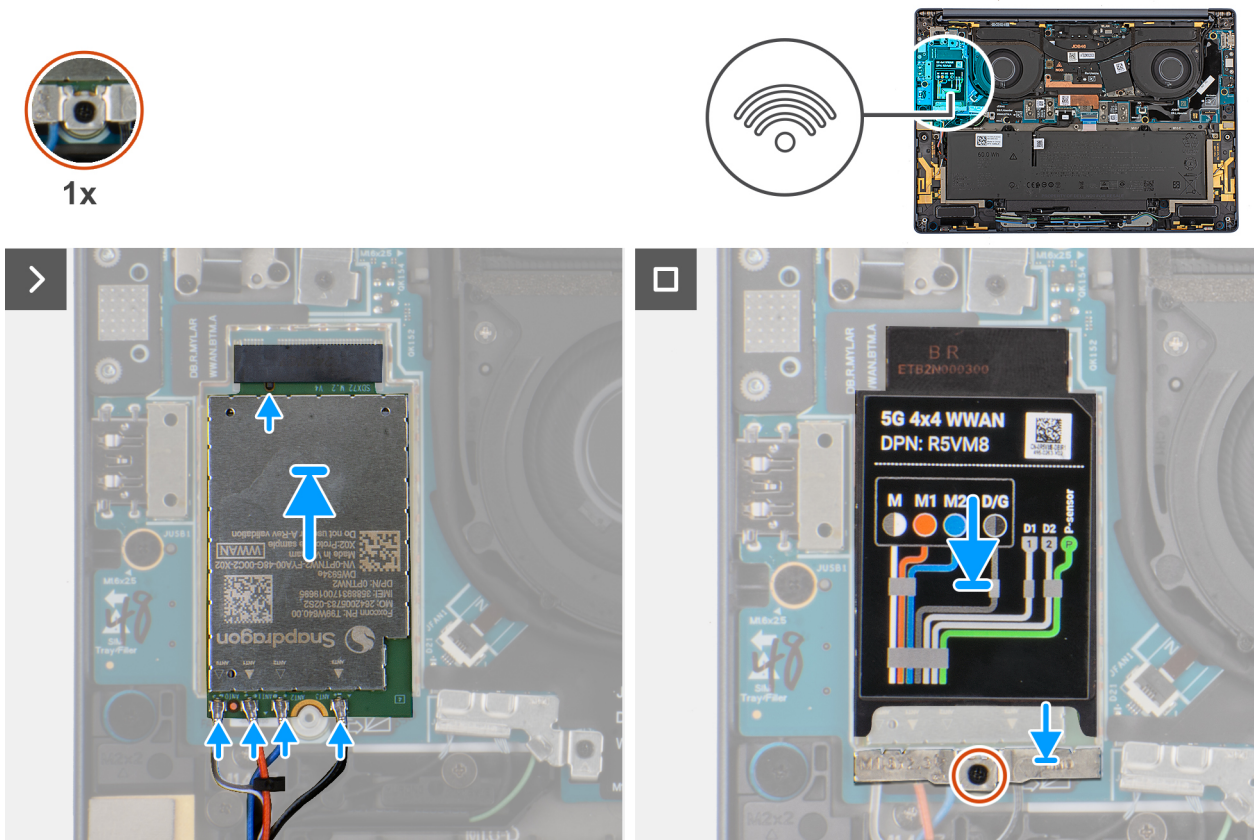
Požiadavky

Ak sa chystáte vymeniť niektorý komponent počítača, pred montážou podľa krokov v príslušnom návode najskôr z počítača odstráňte komponent, ktorý chcete nahradiť.

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

O tejto úlohe

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



Obrázok 26. Installing the WWAN card

Postup

- 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.

Tabuľka31. 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.

POZNÁMKA: 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](#).

Ďalší postup

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](#).

Ventilátor

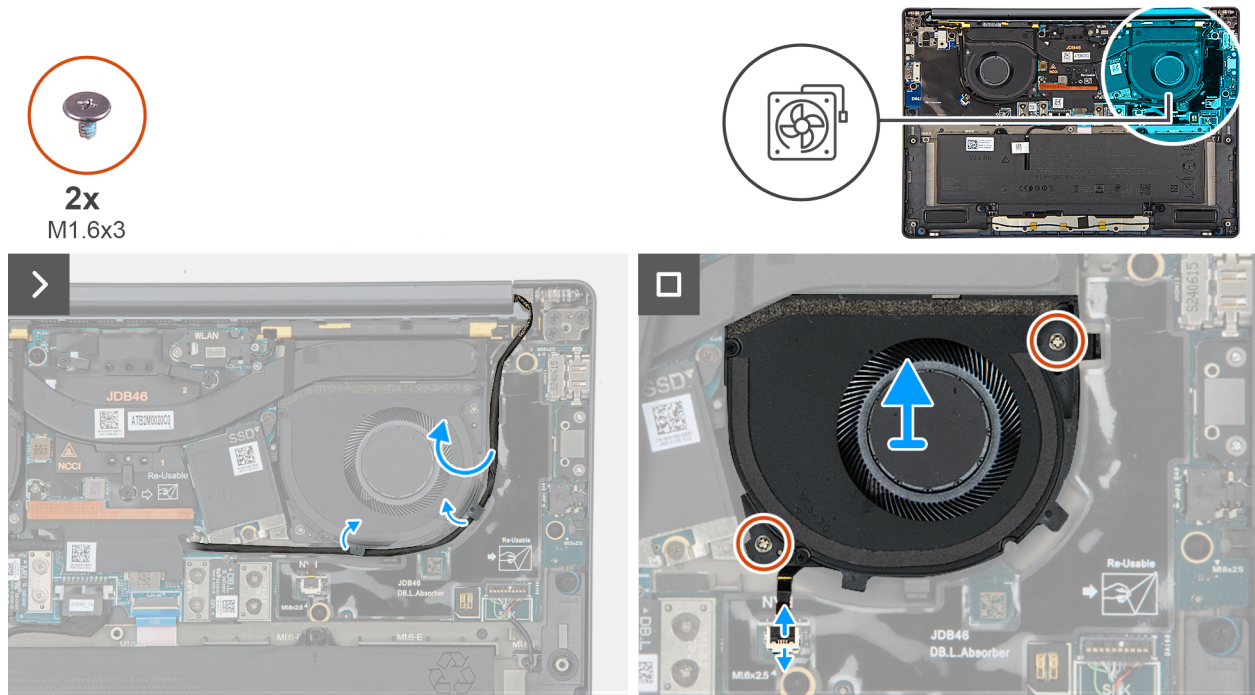
Removing the left fan

Požiadavky

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

O tejto úlohe

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



Obrázok 27. Removing the left fan

Postup

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.

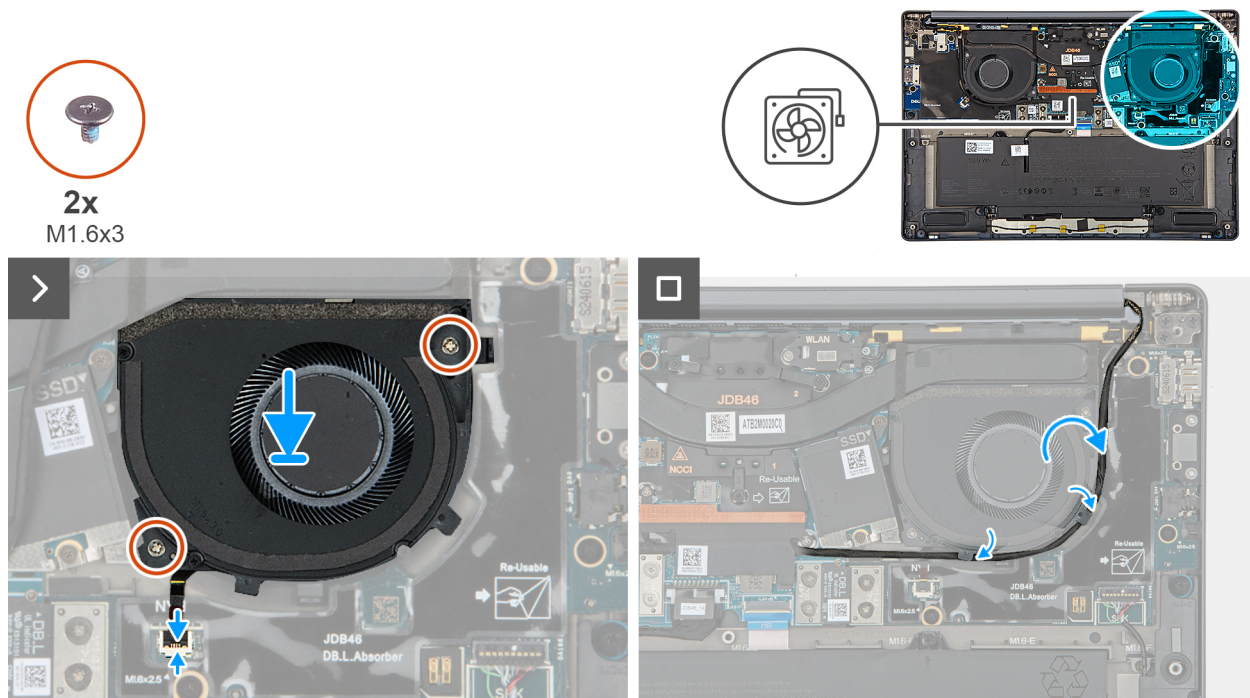
Installing the left fan

Požiadavky

Ak sa chystáte vymeniť niektorý komponent počítača, pred montážou podľa krokov v príslušnom návode najskôr z počítača odstráňte komponent, ktorý chcete nahradiť.

O tejto úlohe

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



Obrázok 28. Installing the left fan

Postup

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.

Ďalší postup

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

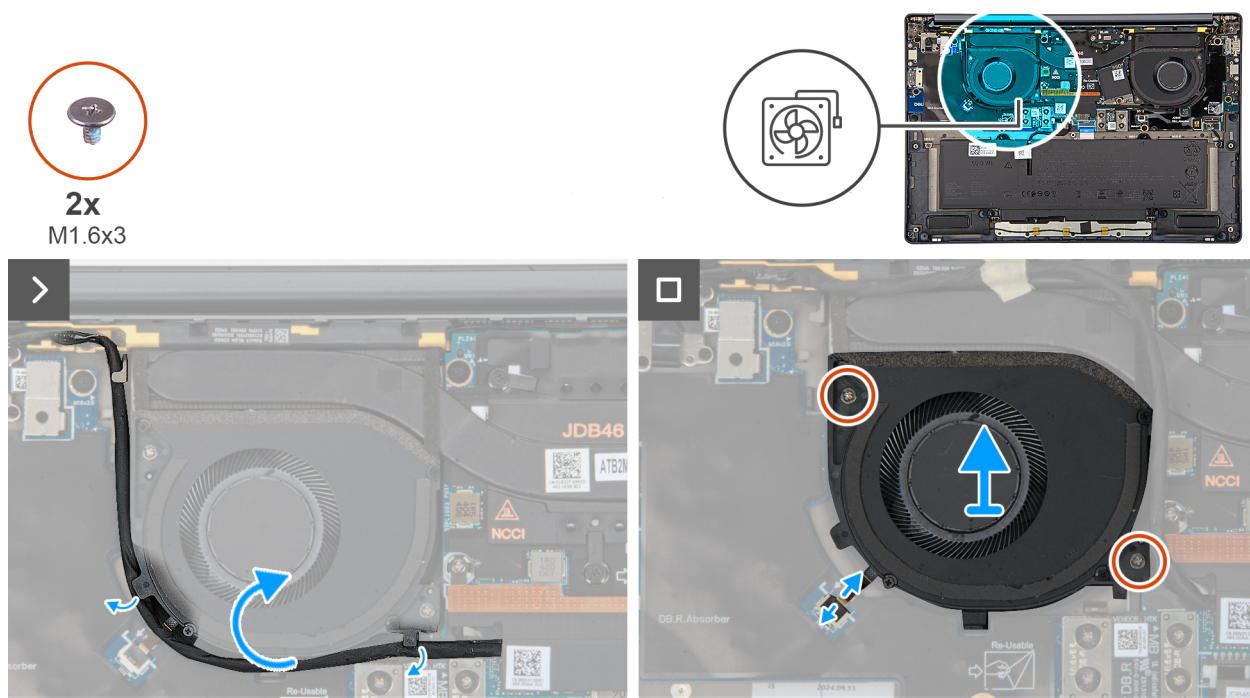
Removing the right fan

Požiadavky

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

O tejto úlohe

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



Obrázok 29. Removing the right fan

Postup

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.

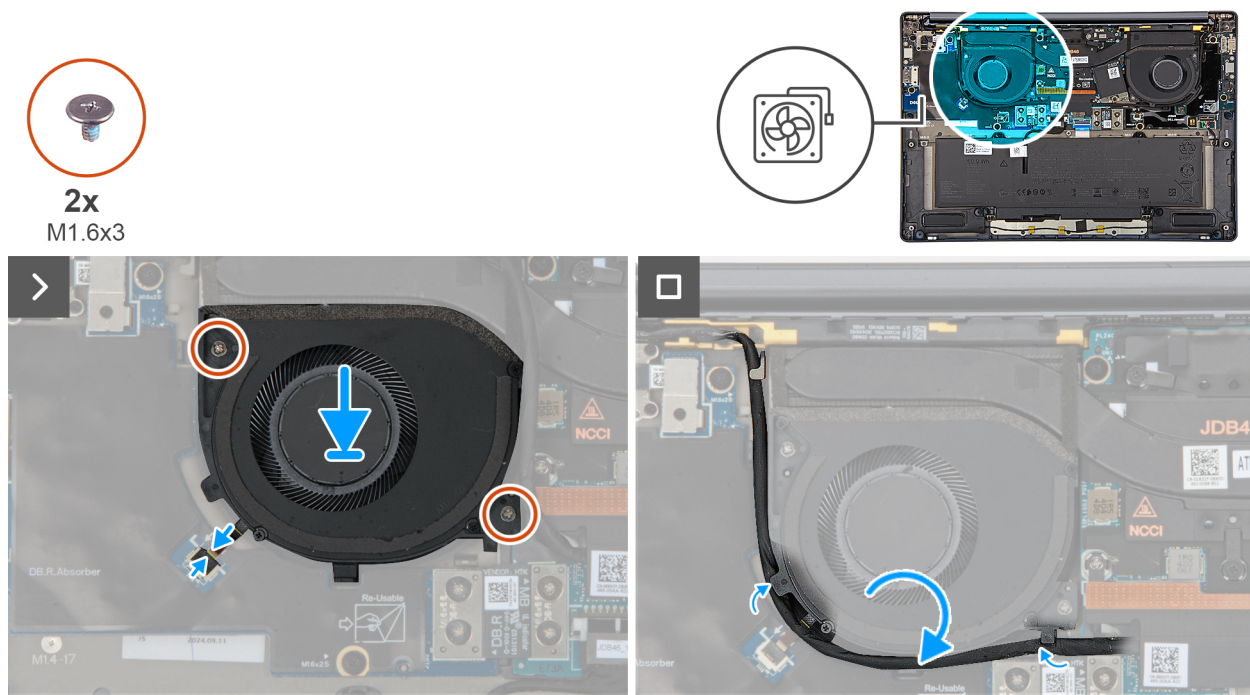
Installing the right fan

Požiadavky

Ak sa chystáte vymeniť niektorý komponent počítača, pred montážou podľa krokov v príslušnom návode najskôr z počítača odstráňte komponent, ktorý chcete nahradiť.

O tejto úlohe

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



Obrázok 30. Installing the right fan

Postup

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.

Ďalší postup

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

Reproduktory

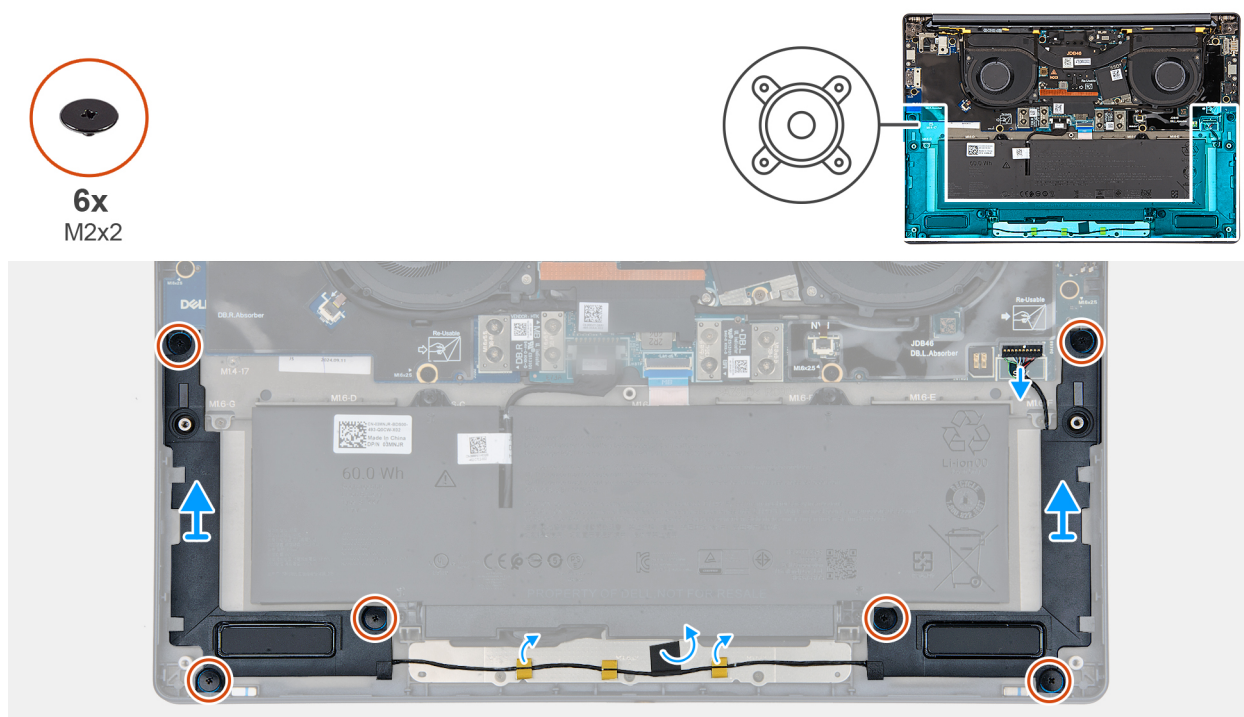
Removing the speakers without antenna (WLAN configuration)

Požiadavky

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

O tejto úlohe

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



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

Postup

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.

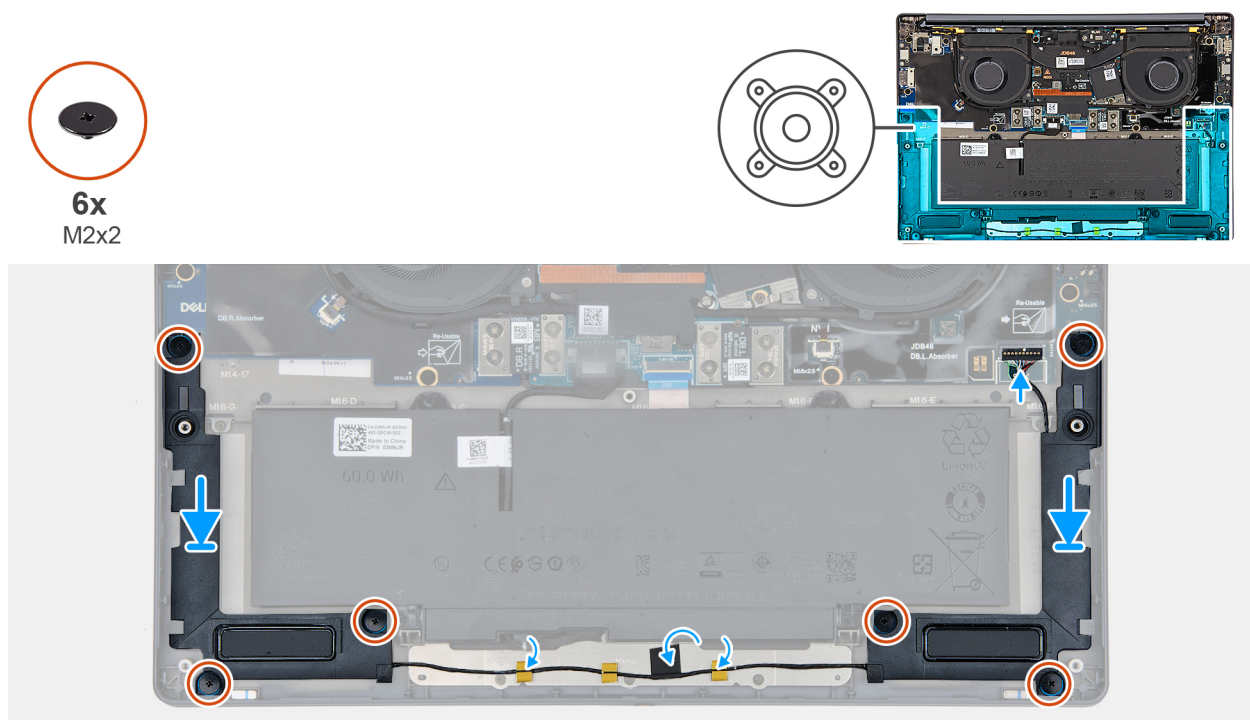
Installing the speakers without antenna (WLAN configuration)

Požiadavky

Ak sa chystáte vymeniť niektorý komponent počítača, pred montážou podľa krokov v príslušnom návode najskôr z počítača odstráňte komponent, ktorý chcete nahradiť.

O tejto úlohe

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



Obrázok 32. Installing the speakers (without WWAN)

Postup

1. Using the alignment posts and rubber grommets, place the speakers into the slots on the palm-rest and keyboard assembly.
- i POZNÁMKA:** 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.

Ďalší postup

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

Demontáž a montáž jednotiek vymeniteľných v teréne (FRU)

Vymeniteľné komponenty uvedené v tejto kapitole sú jednotky, ktoré môžu vymieňať servisní technici v teréne (FRU).

VAROVANIE: Informácie v tejto časti sú určené iba pre autorizovaných servisných technikov.

VAROVANIE: Aby ste predišli prípadnému poškodeniu komponentu alebo strate údajov, zabezpečte výmenu vymeniteľných jednotiek (FRU) autorizovaným servisným technikom.

VAROVANIE: Dell Technologies odporúča, aby opravy týchto komponentov (v prípade potreby) vykonávali vyškolení servisní technici.

VAROVANIE: Záruka na zariadenie sa totiž nevzťahuje na poškodenia spôsobené neodborným servisom jednotiek FRU, ktorý nebol schválený firmou Dell Technologies.

POZNÁMKA: Ilustrácie v tomto dokumente na môžu líšiť od vášho počítača v závislosti od vami objednanej konfigurácie.

Reproduktory

Removing the speakers with antennas (WWAN configuration)

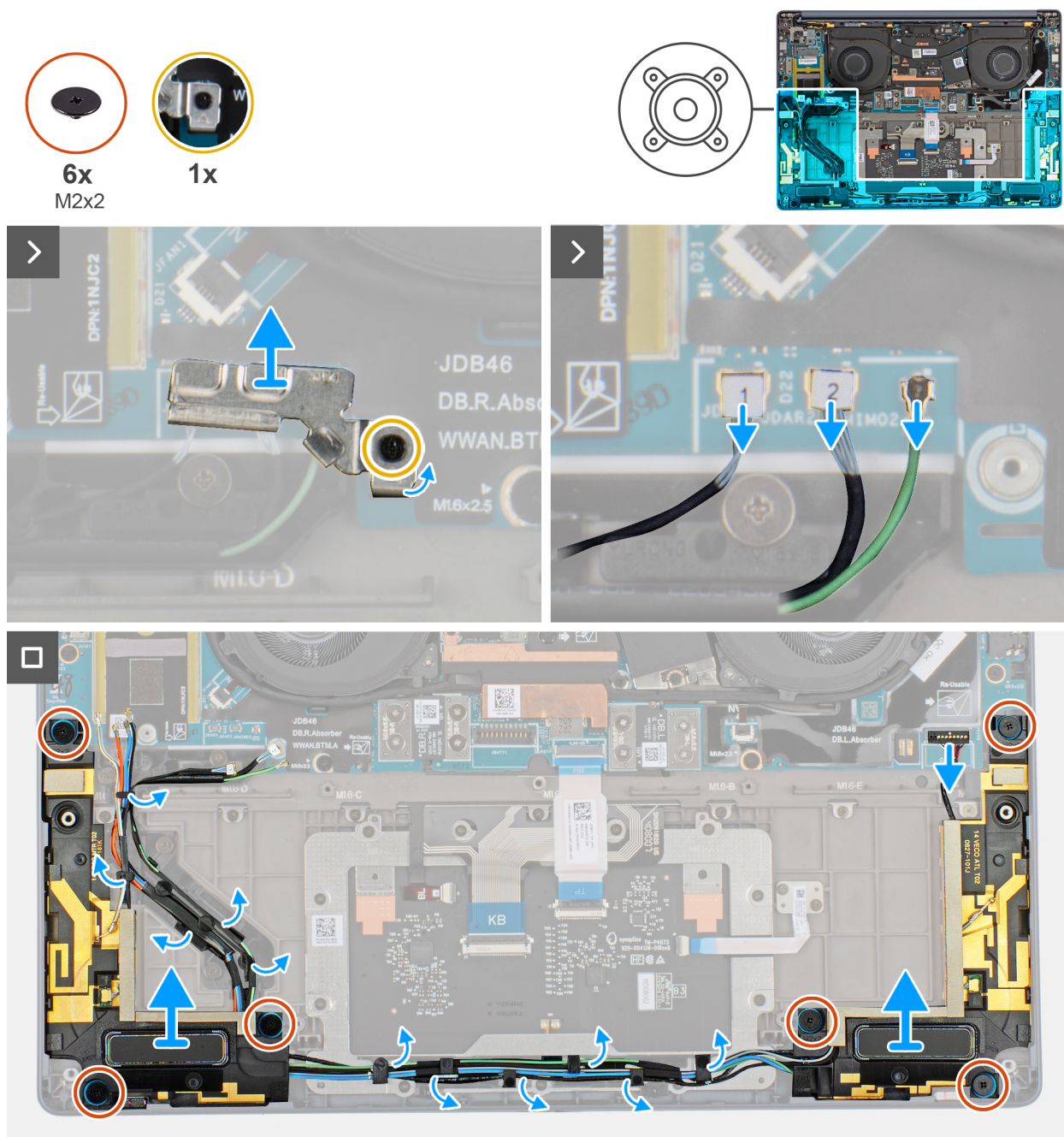
VAROVANIE: The information in this section is intended for authorized service technicians only.

Požiadavky

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](#).

O tejto úlohe

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



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

Postup

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)

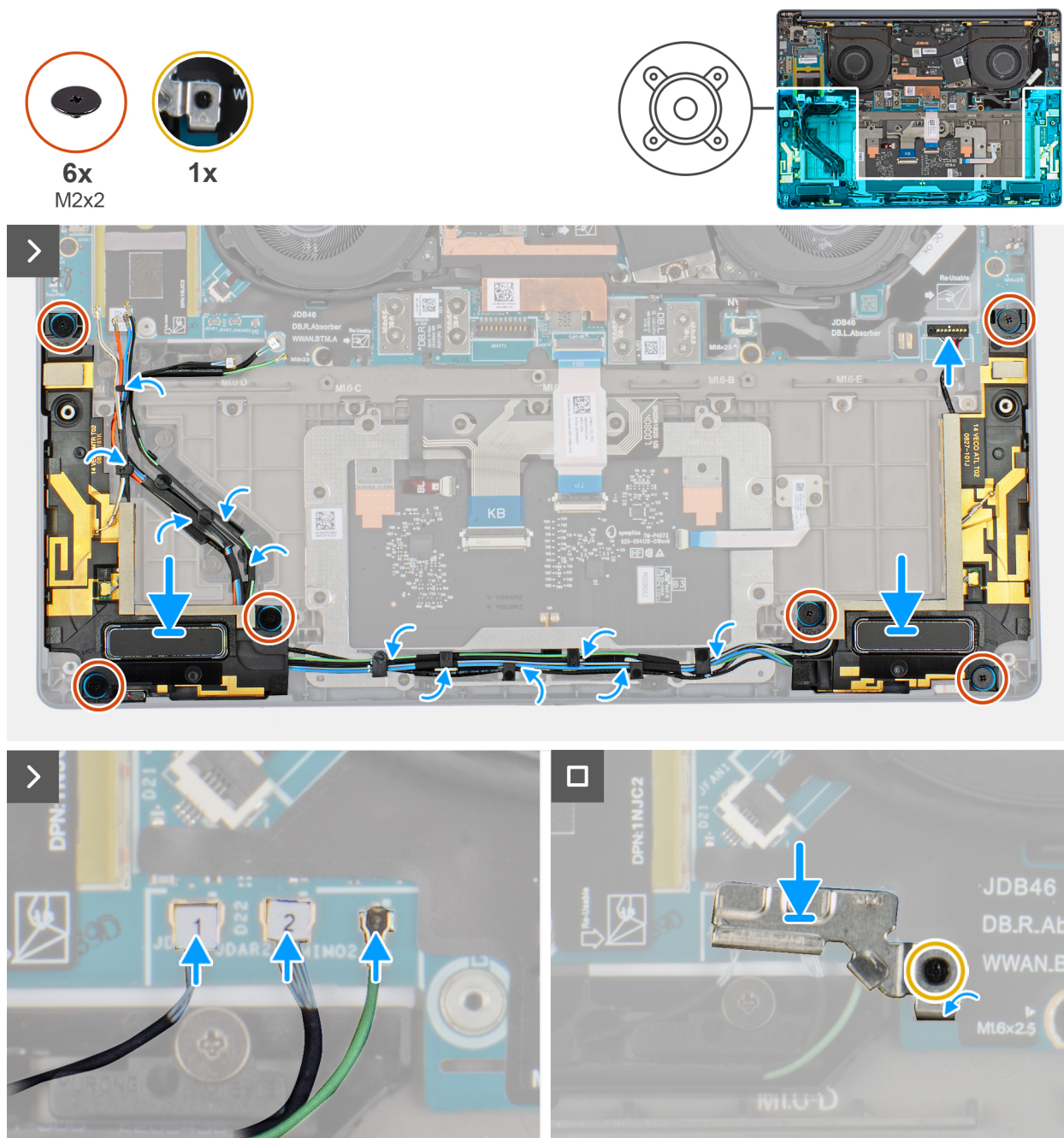
VAROVANIE: The information in this section is intended for authorized service technicians only.

Požiadavky

Ak sa chystáte vymeniť niektorý komponent počítača, pred montážou podľa krokov v príslušnom návode najskôr z počítača odstráňte komponent, ktorý chcete nahradiť.

O tejto úlohe

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



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

Postup

1. Using the alignment posts and rubber grommets, place the speakers into the slots on the palm-rest and keyboard assembly.
 **POZNÁMKA:** 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.

Ďalší postup

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](#).

Chladič

Removing the heat sink

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

Požiadavky

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

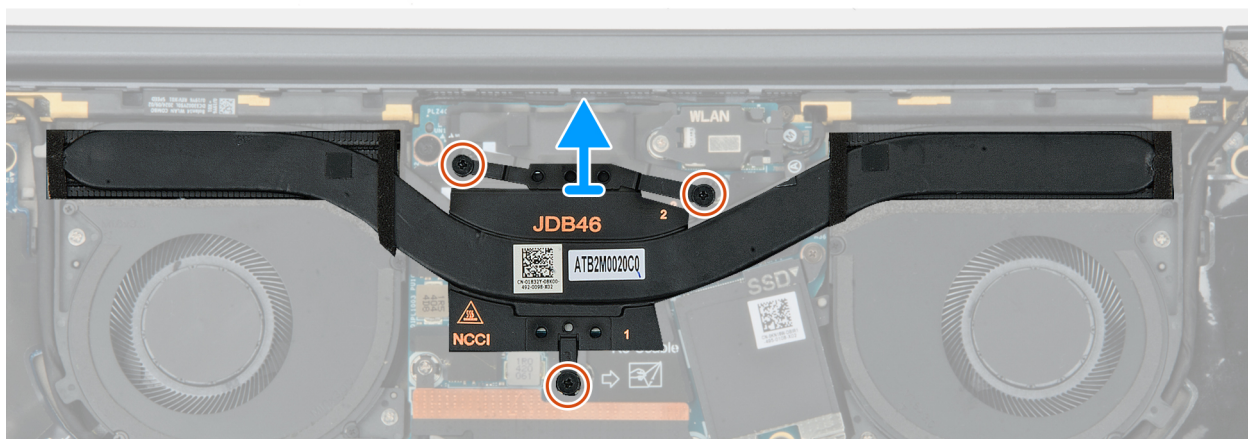
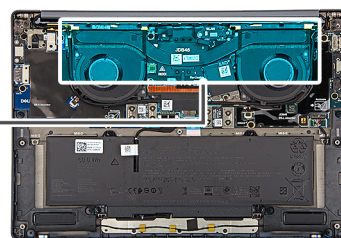
O tejto úlohe

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



Obrázok 35. Removing the heat sink

Postup

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

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

Požiadavky

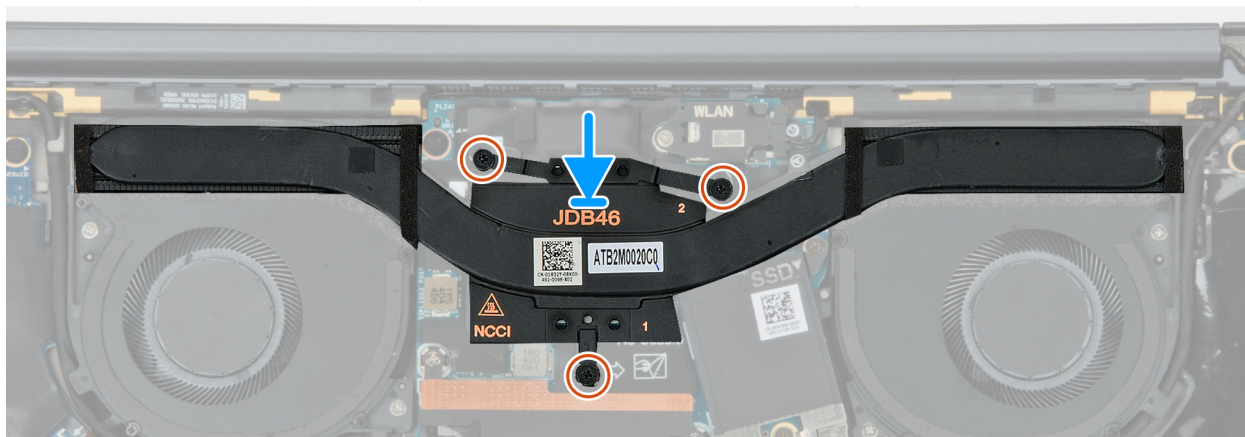
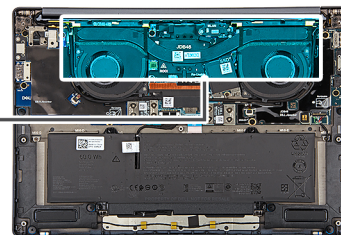
If you are replacing a component, remove the existing component before performing the installation process.

O tejto úlohe

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



3x



Obrázok 36. Installing the heat sink

Postup

1. Place the heat sink on the system board.

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

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.

Ďalší postup

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

I/O board

Removing the left I/O-board

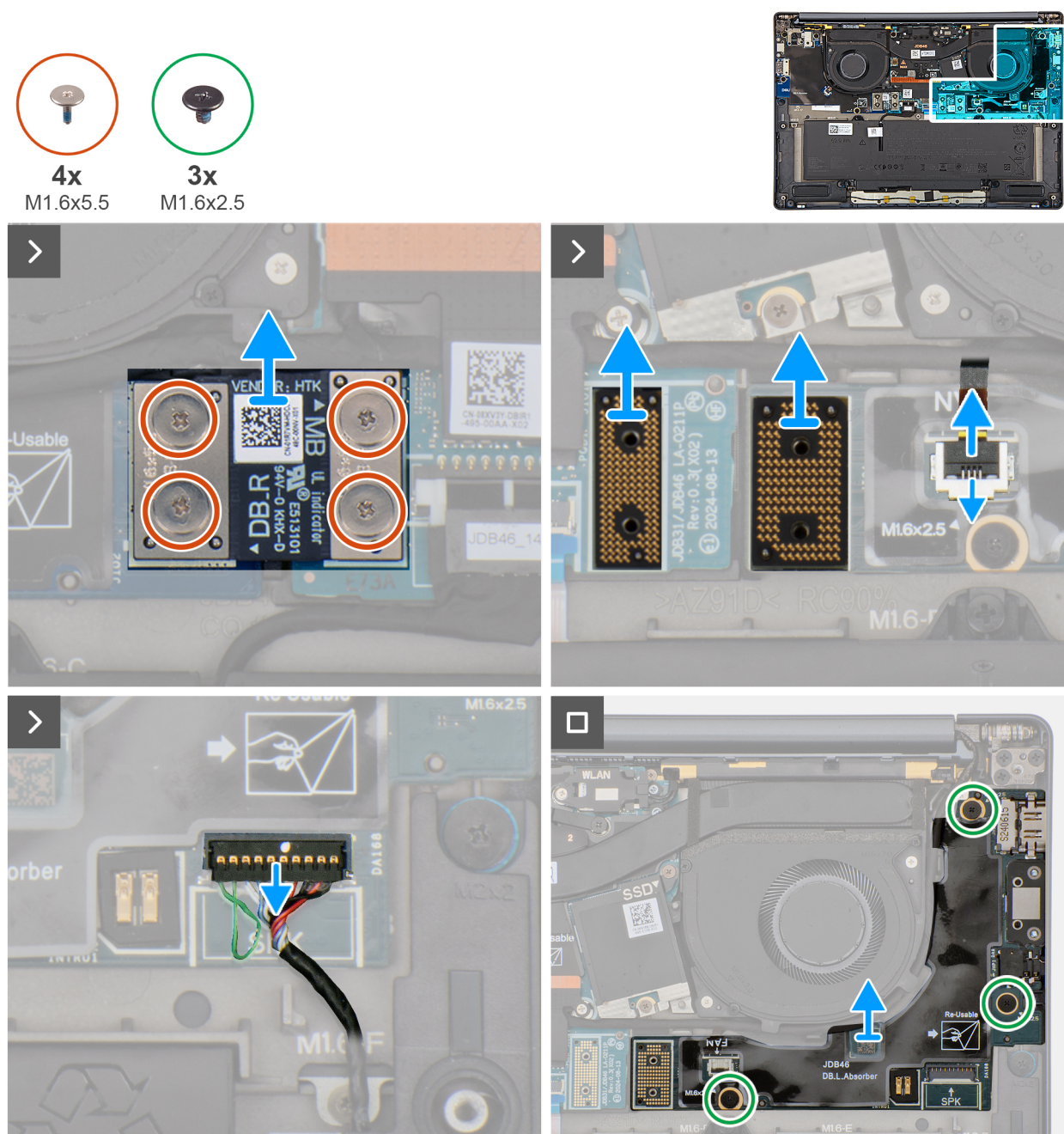
VAROVANIE: The information in this section is intended for authorized service technicians only.

Požiadavky

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

O tejto úlohe

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



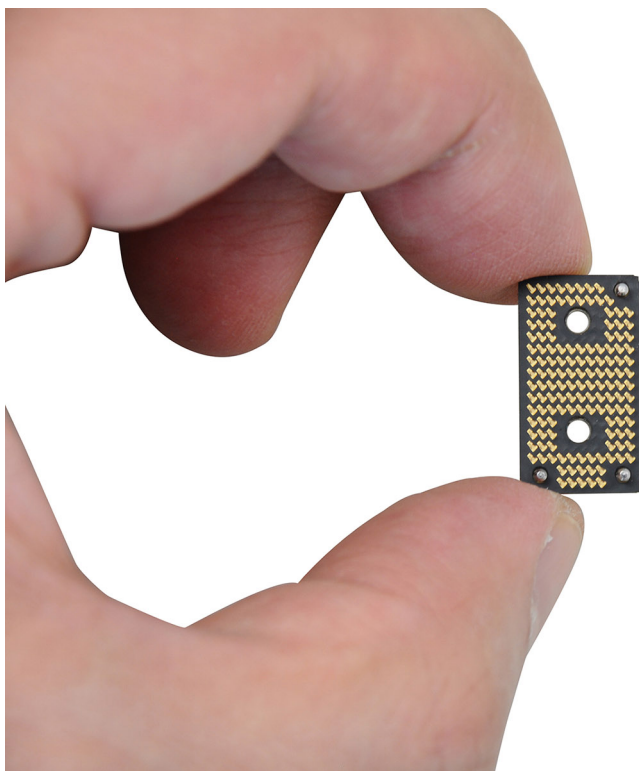
Obrázok 37. Removing the left I/O-board

Postup

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.

VAROVANIE: 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.

POZNÁMKA: 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.



Obrázok 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.
-  **POZNÁMKA:** 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

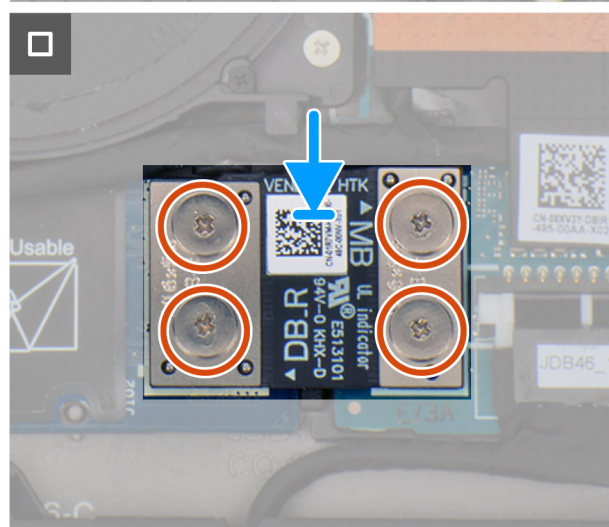
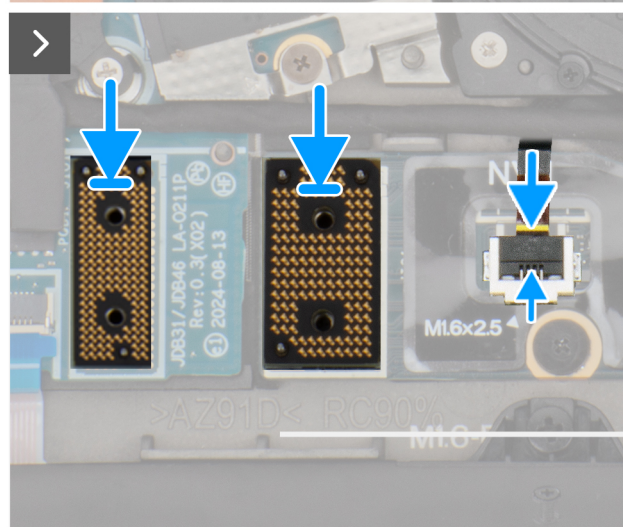
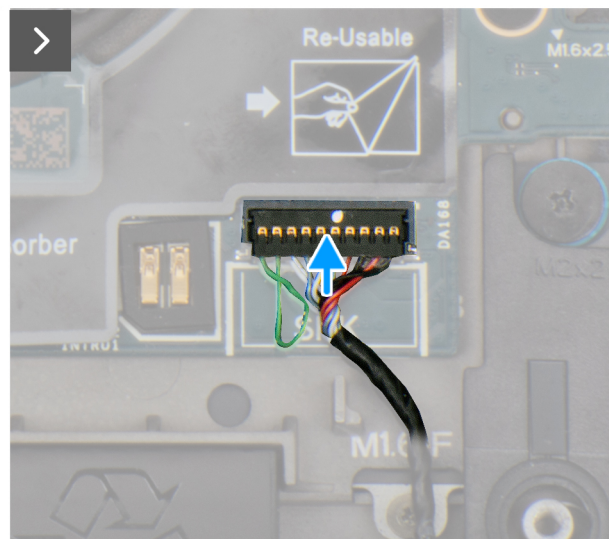
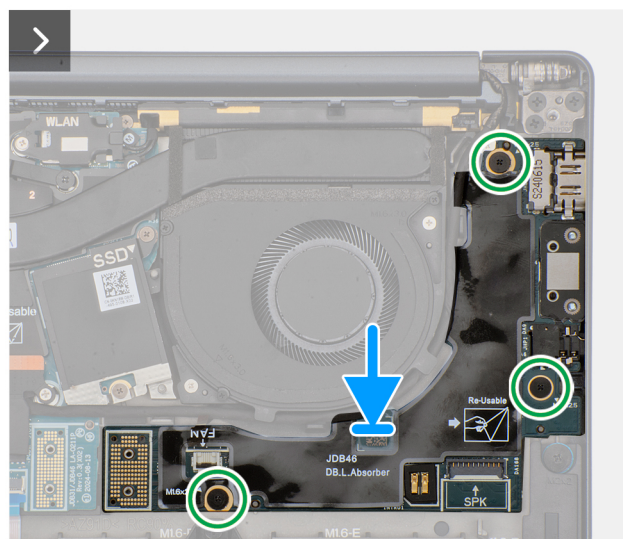
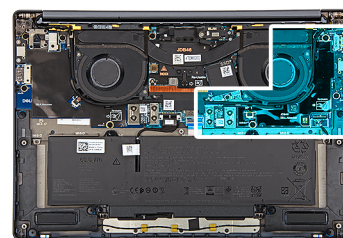
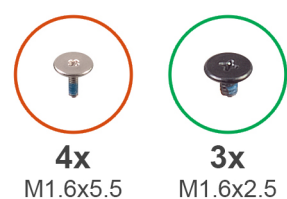
 **VAROVANIE:** The information in this section is intended for authorized service technicians only.

Požiadavky

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

O tejto úlohe

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

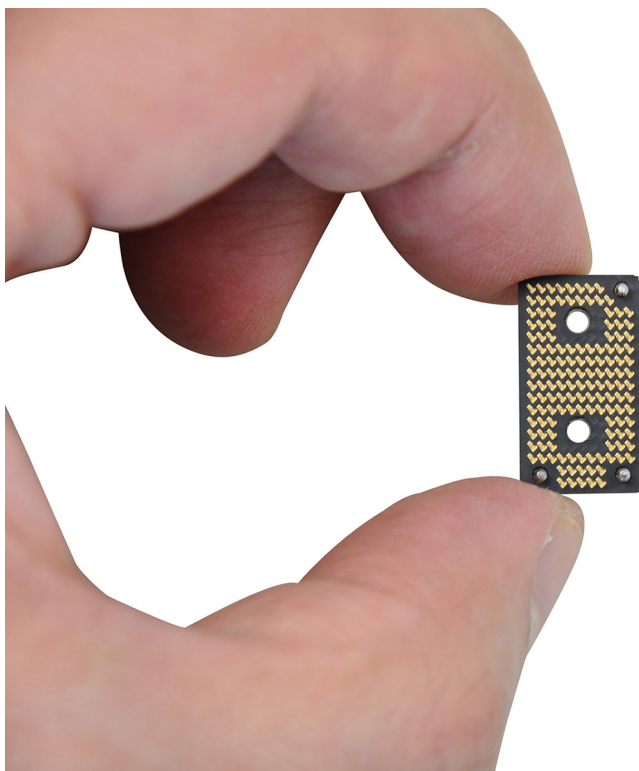


Obrázok 39. Installing the left I/O-board

Postup

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.

POZNÁMKA: 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.



Obrázok 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.

Ďalší postup

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

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

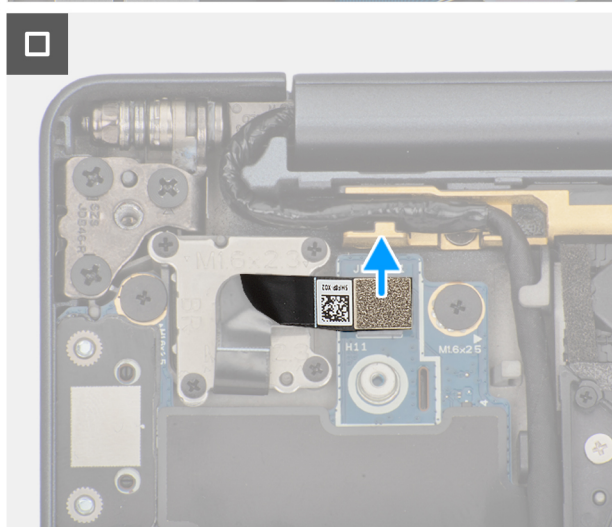
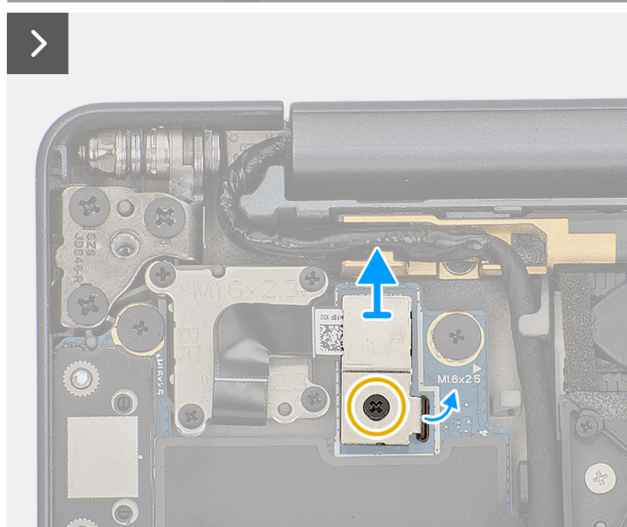
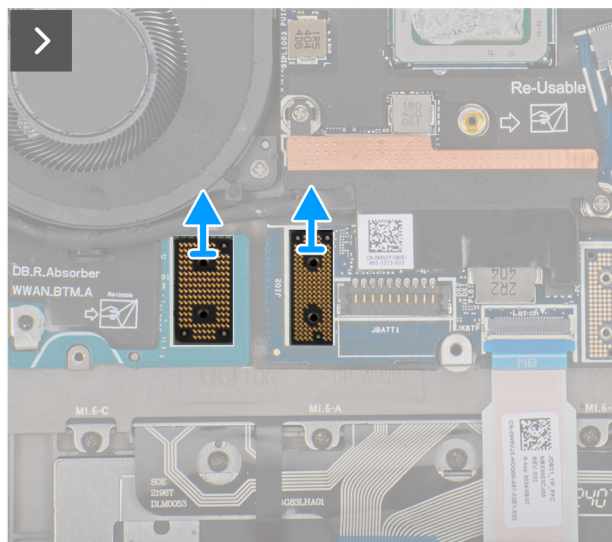
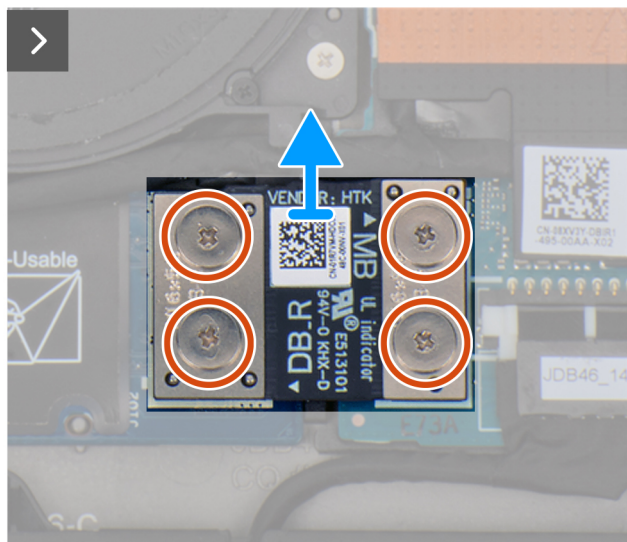
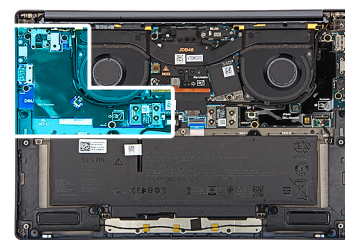
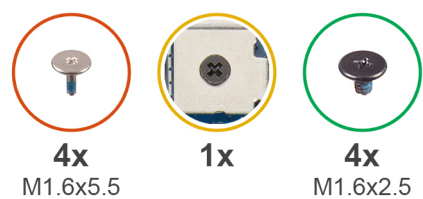
 **VAROVANIE:** The information in this section is intended for authorized service technicians only.

Požiadavky

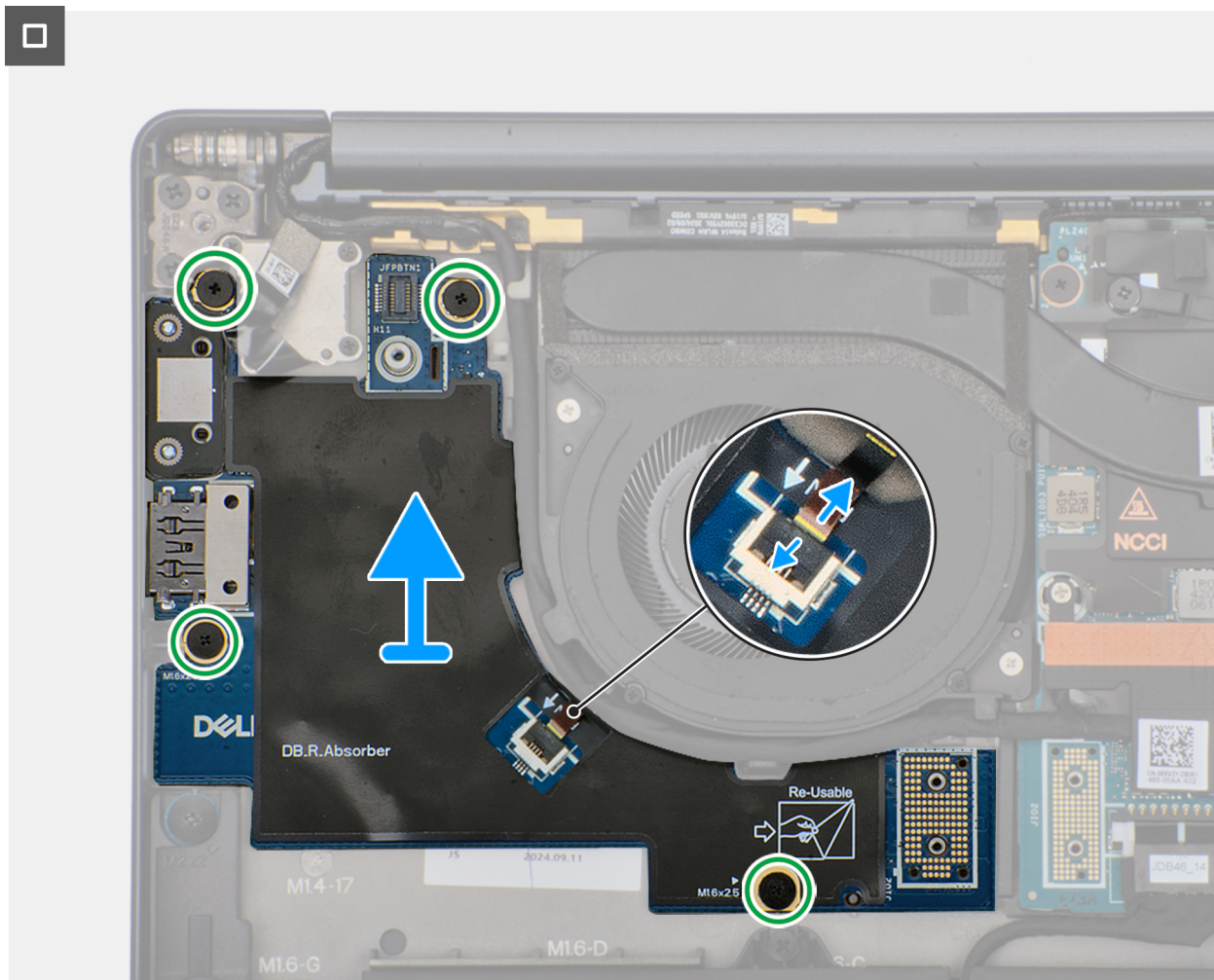
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).

O tejto úlohe

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



Obrázok 41. Removing the screws



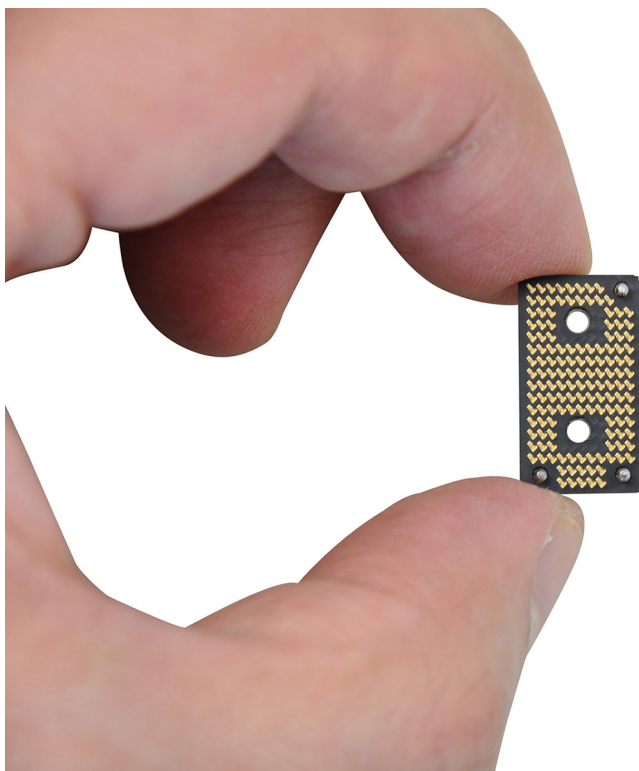
Obrázok 42. Removing the right I/O-board (without WWAN antennas)

Postup

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.

VAROVANIE: 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.

POZNÁMKA: 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.



Obrázok 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.

 **POZNÁMKA:** 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)

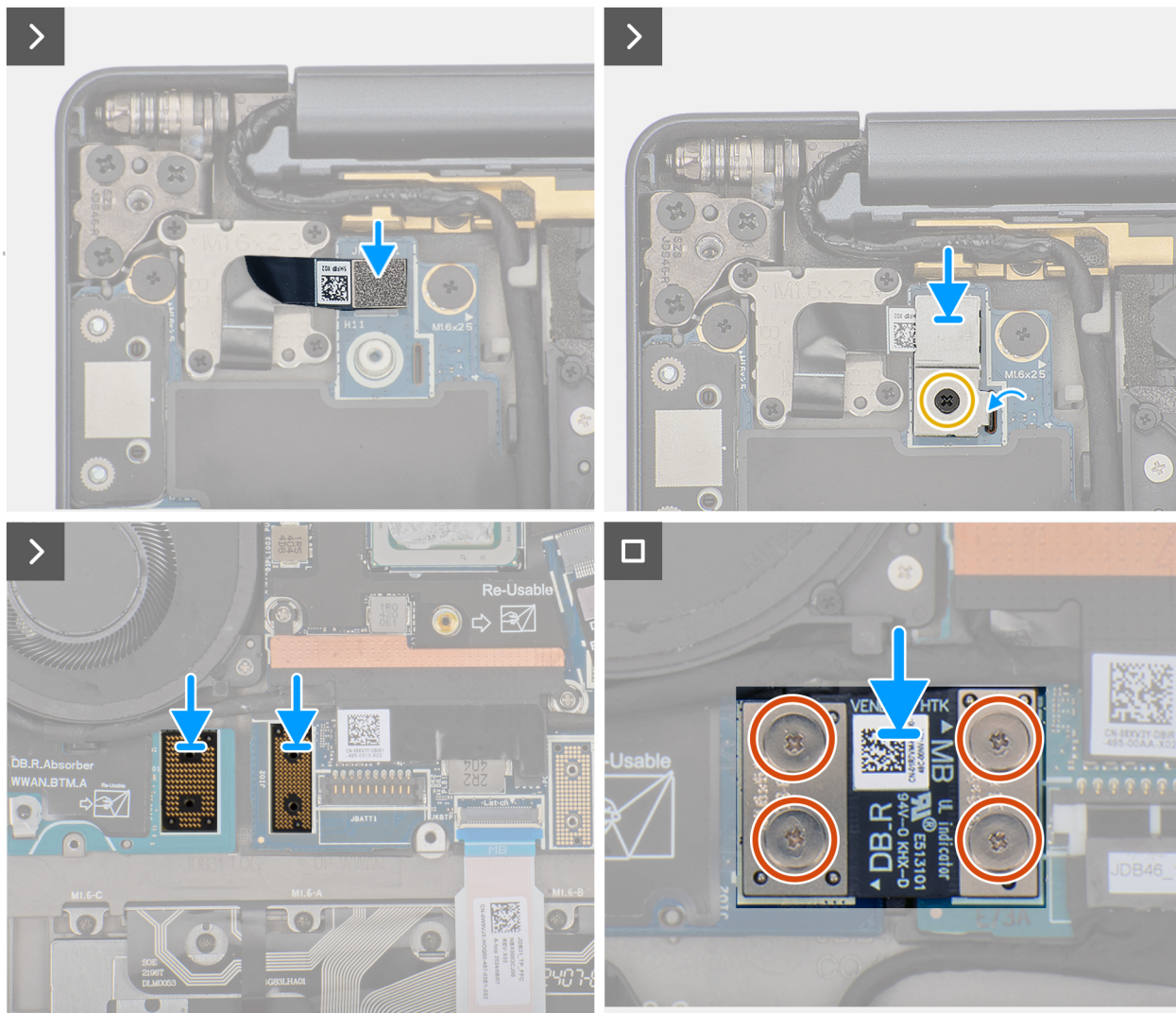
 **VAROVANIE:** The information in this section is intended for authorized service technicians only.

Požiadavky

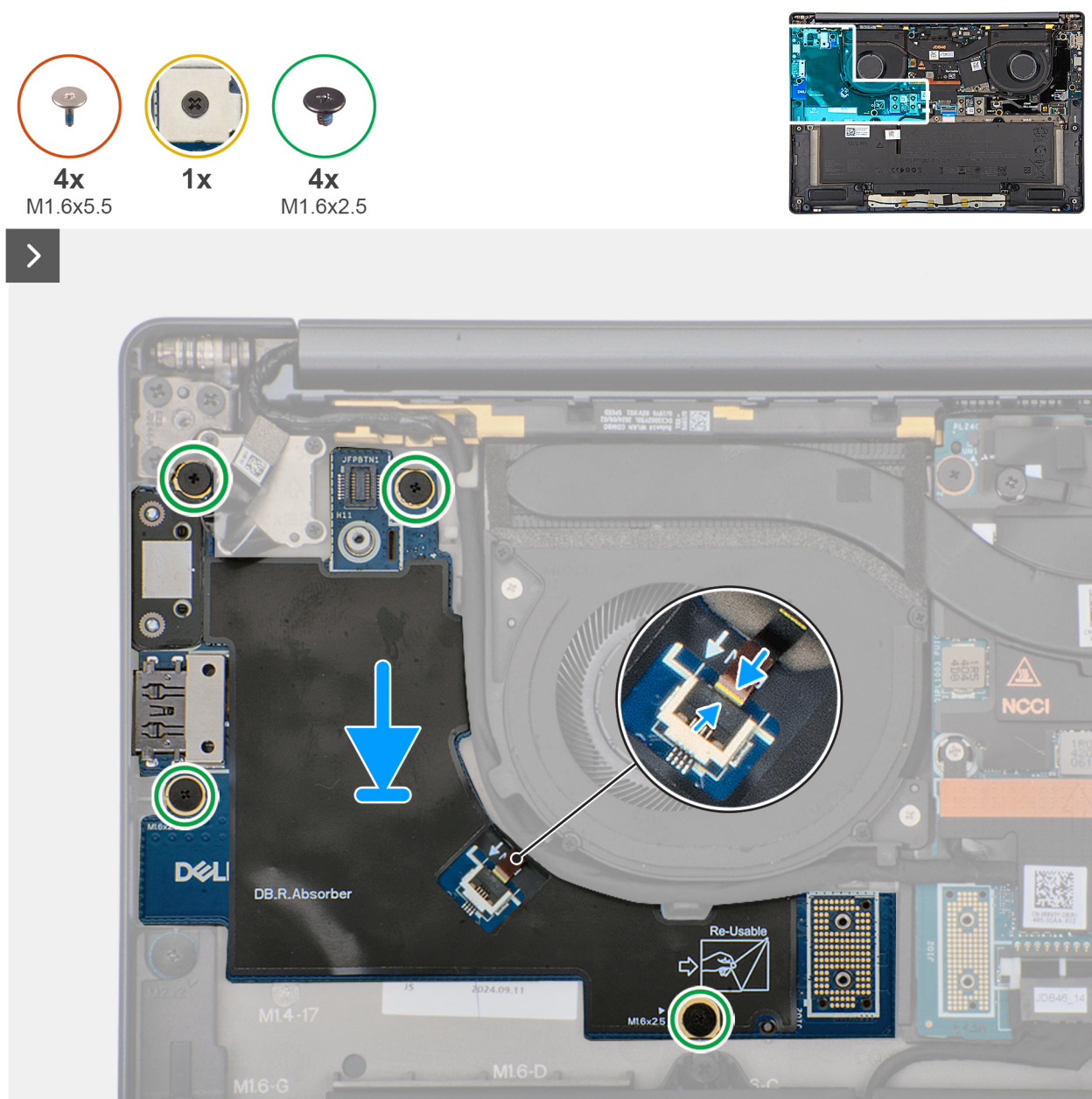
If you are replacing a component, remove the existing component before performing the installation process.

O tejto úlohe

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



Obrázok 44. Installing the screws

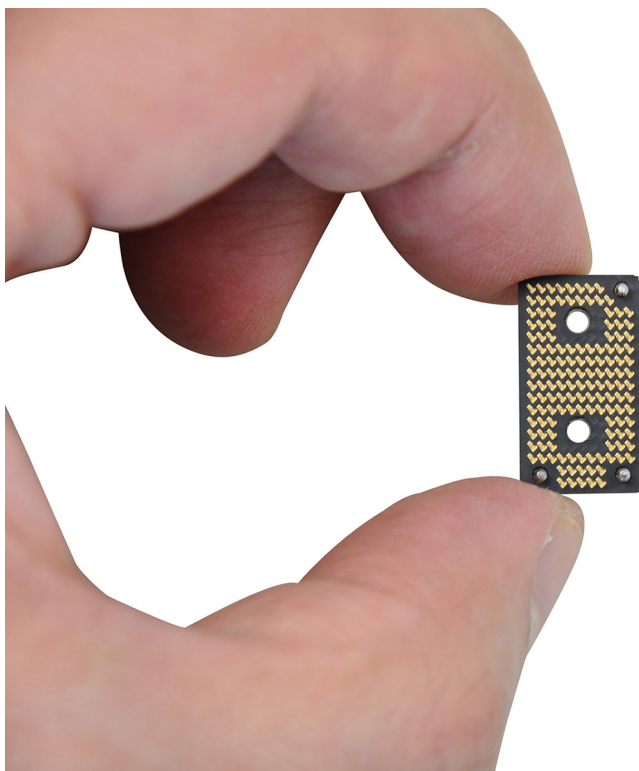


Obrázok 45. Installing the right I/O board (without WWAN antennas)

Postup

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.

POZNÁMKA: 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.



Obrázok 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.

Ďalší postup

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)

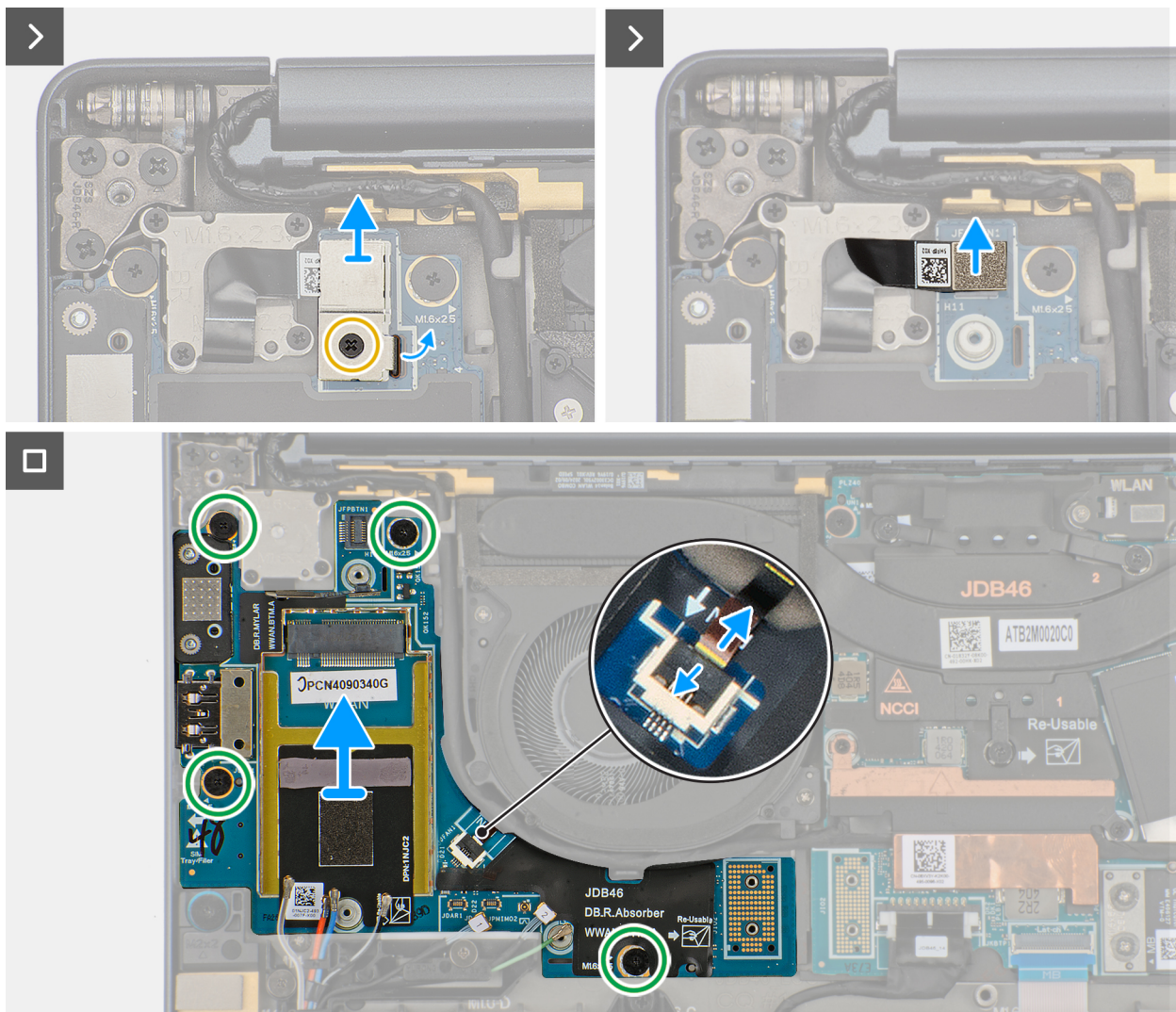
 **VAROVANIE:** The information in this section is intended for authorized service technicians only.

Požiadavky

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](#).

O tejto úlohe

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



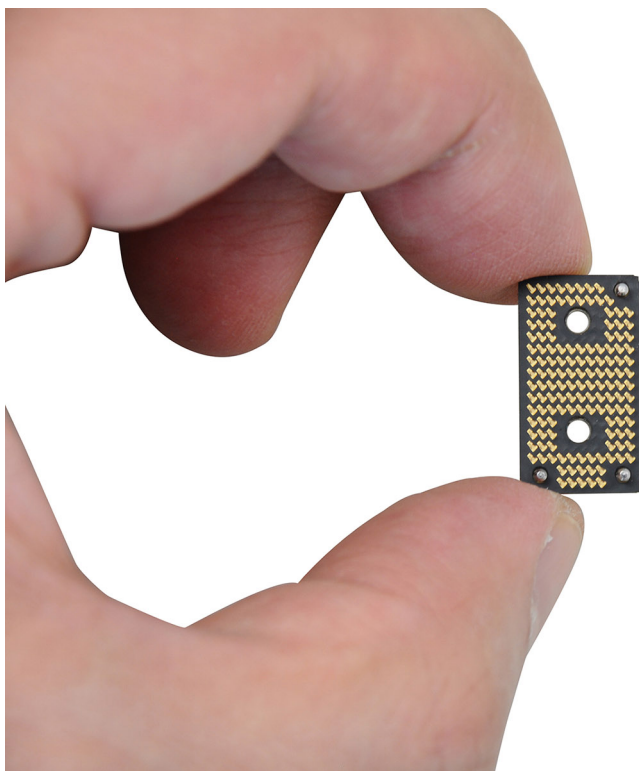
Obrázok 48. Removing the right I/O-board (with WWAN)

Postup

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.

VAROVANIE: 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.

POZNÁMKA: 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.



Obrázok 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.

POZNÁMKA: 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)

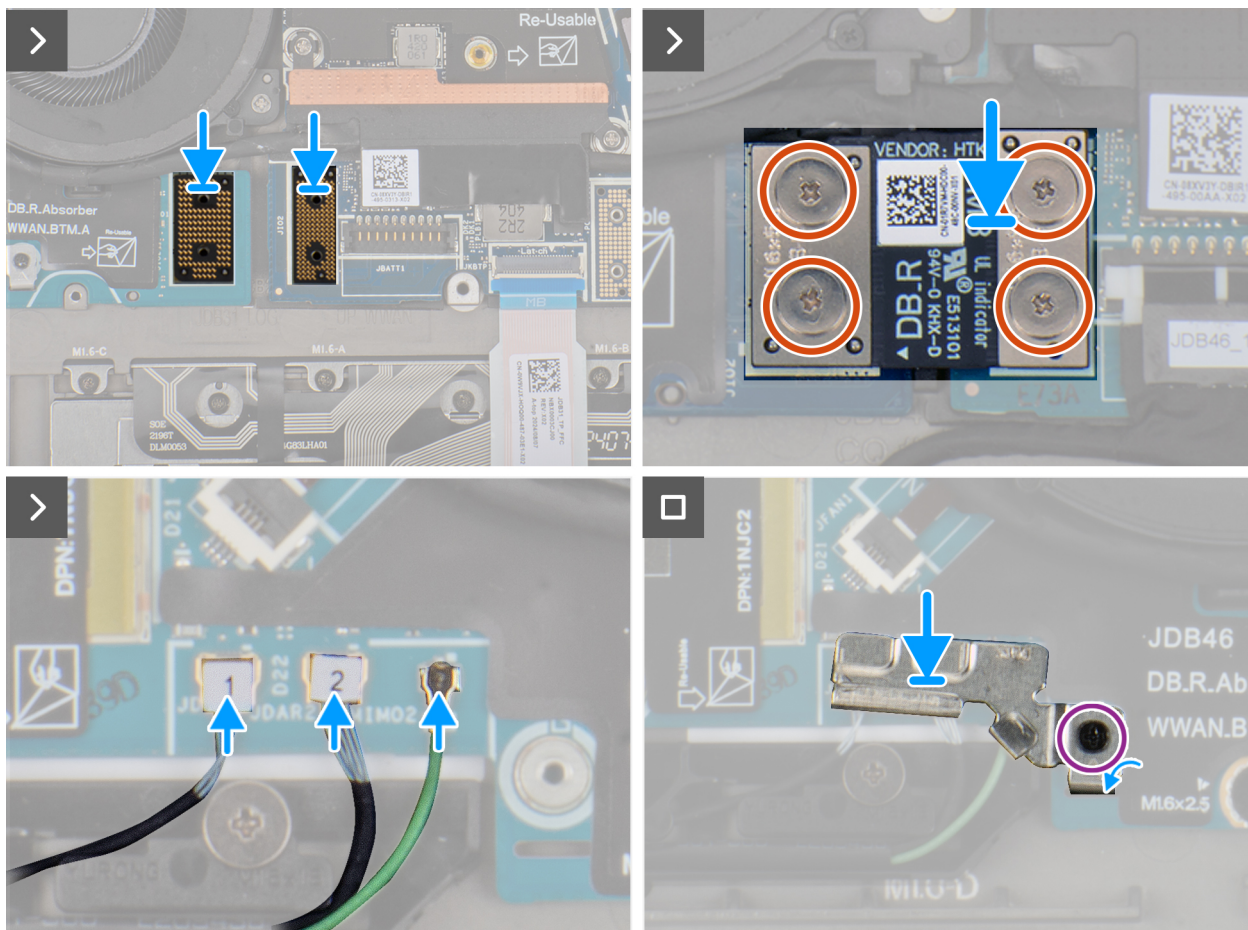
VAROVANIE: The information in this section is intended for authorized service technicians only.

Požiadavky

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

O tejto úlohe

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

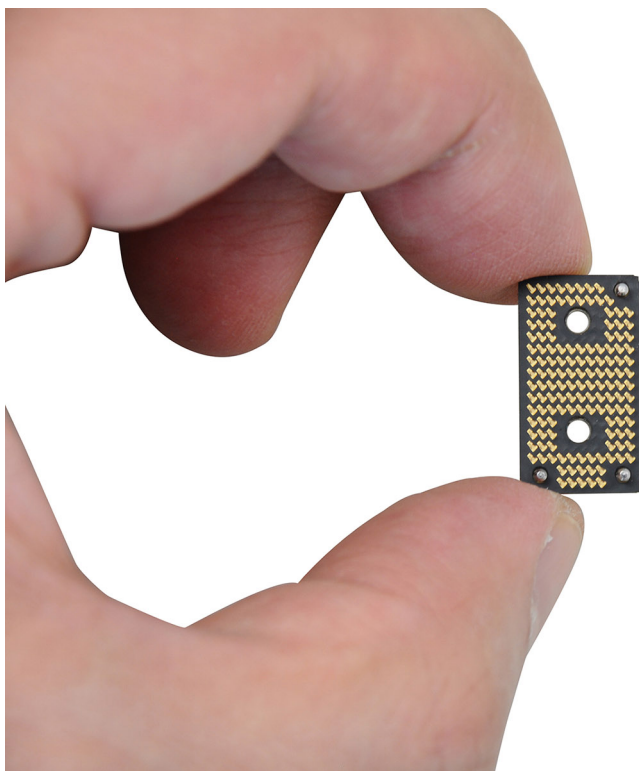


Obrázok 51. Installing the right I/O-board (with WWAN)

Postup

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.

POZNÁMKA: 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.



Obrázok 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.

Ďalší postup

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

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

Požiadavky

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

O tejto úlohe

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



2x
M2x5



Obrázok 53. Removing the left USB Type-C module

Postup

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

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

O tejto úlohe

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



Obrázok 54. Installing the left USB Type-C module

Postup

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.

Ďalší postup

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

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

Požiadavky

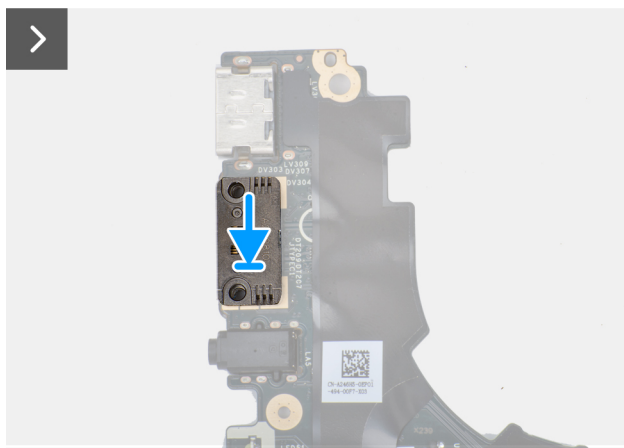
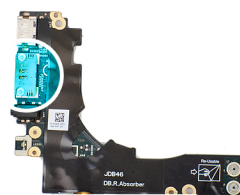
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [nano-SIM card tray](#).
3. Remove the [nano-SIM card](#).
4. Remove the [base cover](#).
5. Remove the [WWAN card](#) (for the computer shipped with WWAN card).
6. Remove the [right I/O-board](#) (for the computer shipped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

O tejto úlohe

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



2x
M2x5



Obrázok 55. Removing the right USB Type-C module

Postup

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

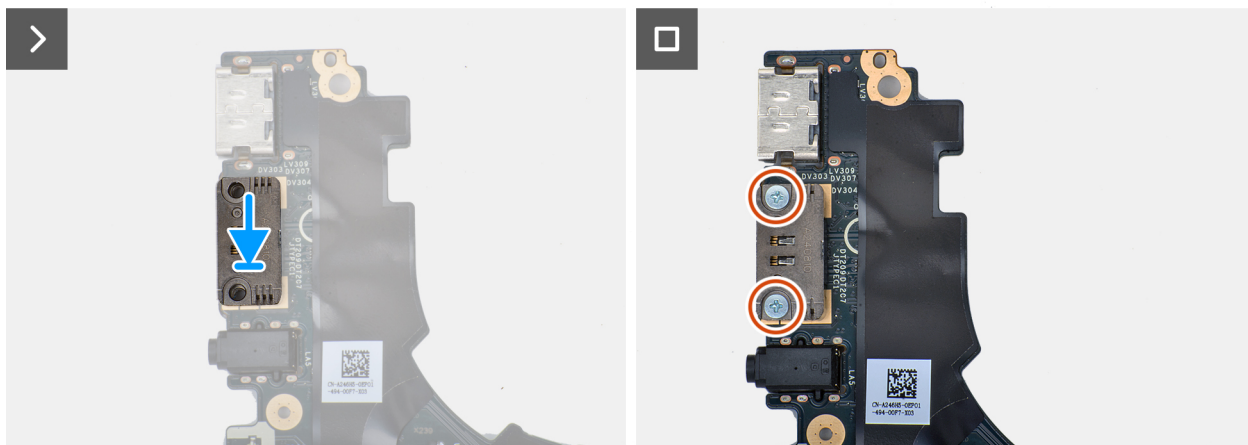
VAROVANIE: The information in this section is intended for authorized service technicians only.

O tejto úlohe

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



2x
M2x5



Obrázok 56. Installing the right USB Type-C module

Postup

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.

Ďalší postup

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](#).

Tlačidlo napájania

Removing the power button

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

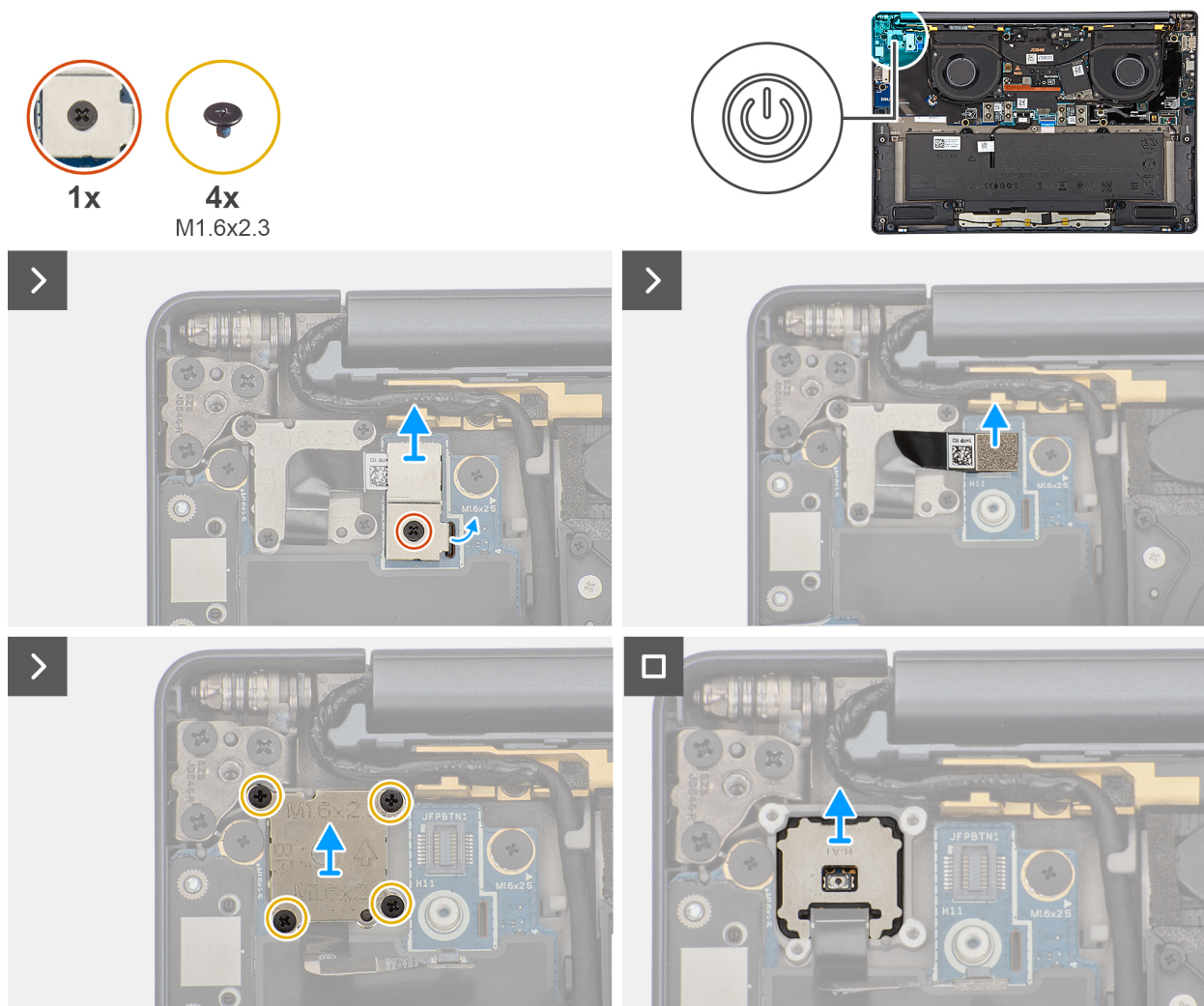
Požiadavky

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).

O tejto úlohe

POZNÁMKA: 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.



Obrázok 57. Removing the power button

Postup

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

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

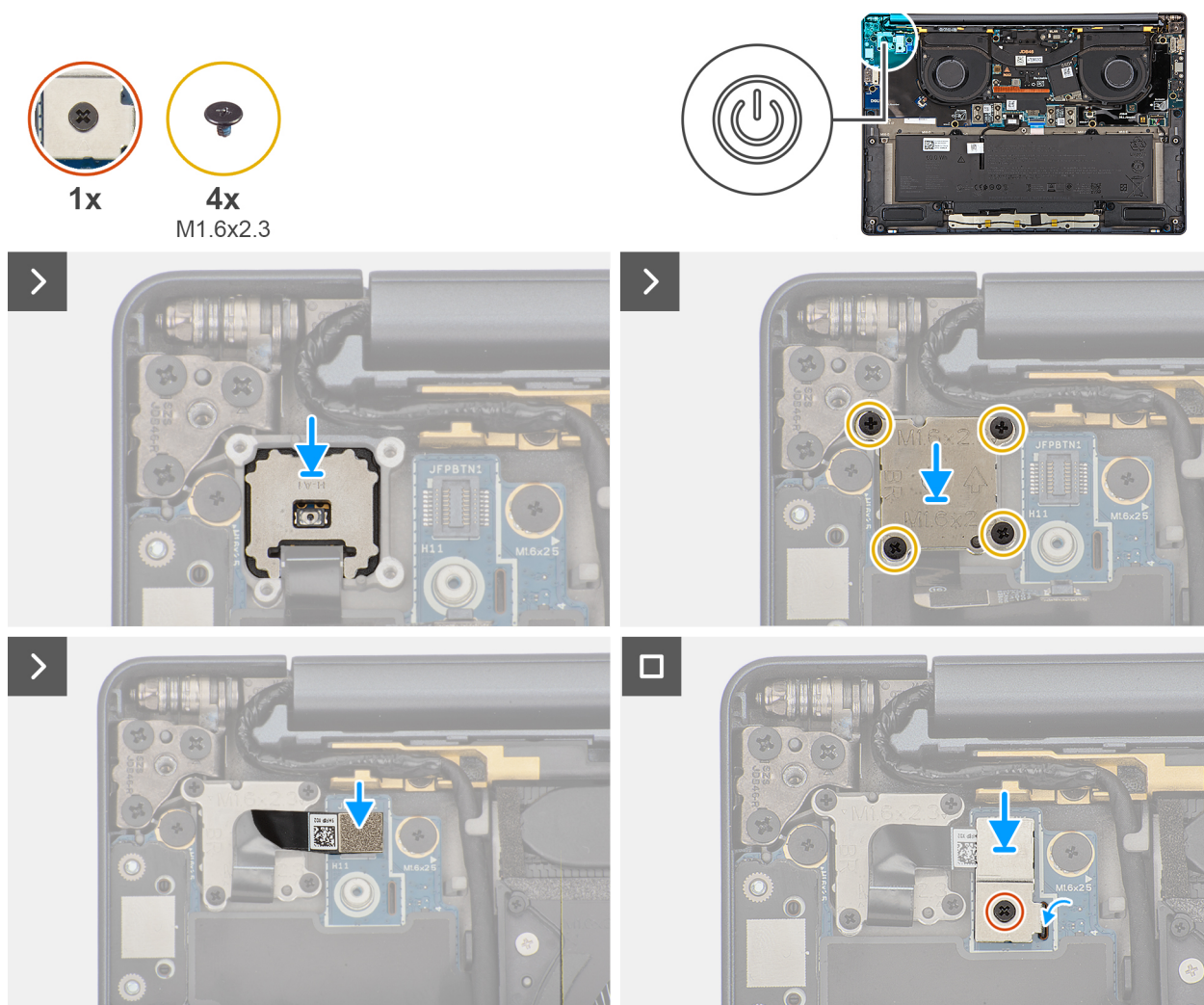
Požiadavky

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

O tejto úlohe

POZNÁMKA: 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.



Obrázok 58. Installing the power button

Postup

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.

Ďalší postup

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](#).

Zostava obrazovky

Removing the display assembly

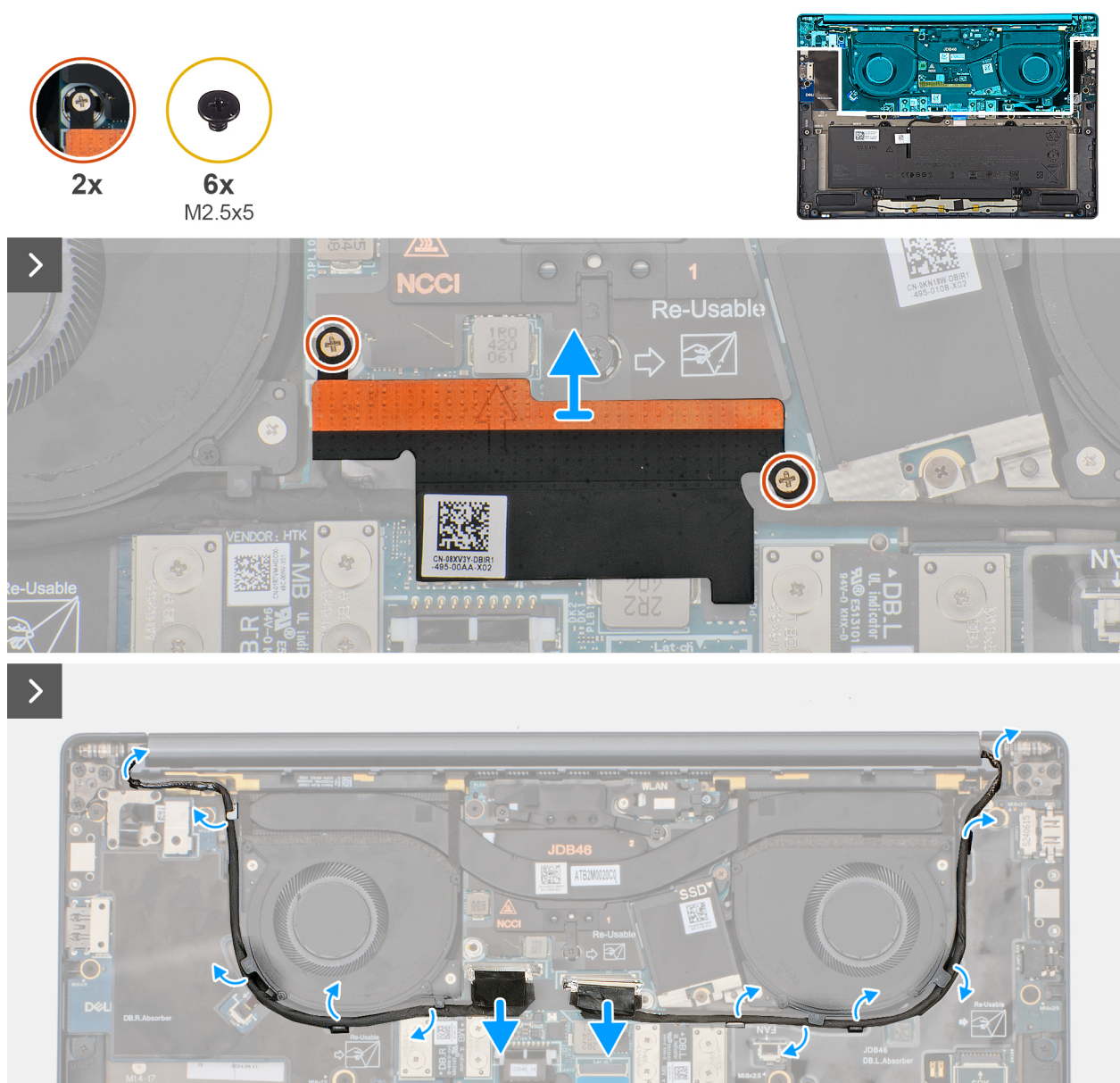
 **VAROVANIE:** The information in this section is intended for authorized service technicians only.

Požiadavky

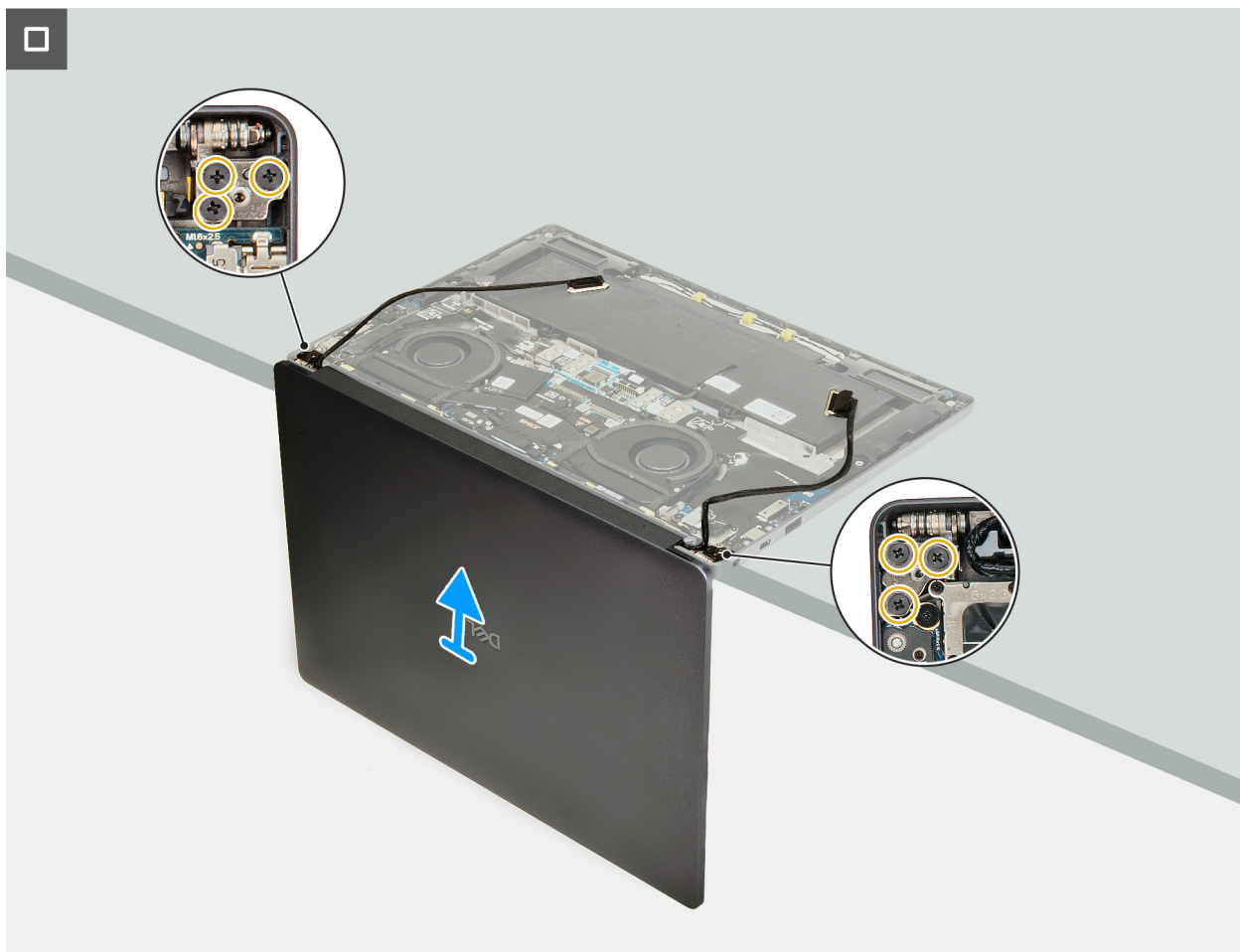
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

O tejto úlohe

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



Obrázok 59. Disconnect the display and camera cables



Obrázok 60. Removing the display assembly



Obrázok 61. LCD

Postup

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

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

Požiadavky

Ak sa chystáte vymeniť niektorý komponent počítača, pred montážou podľa krokov v príslušnom návode najskôr z počítača odstráňte komponent, ktorý chcete nahradiť.

O tejto úlohe

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

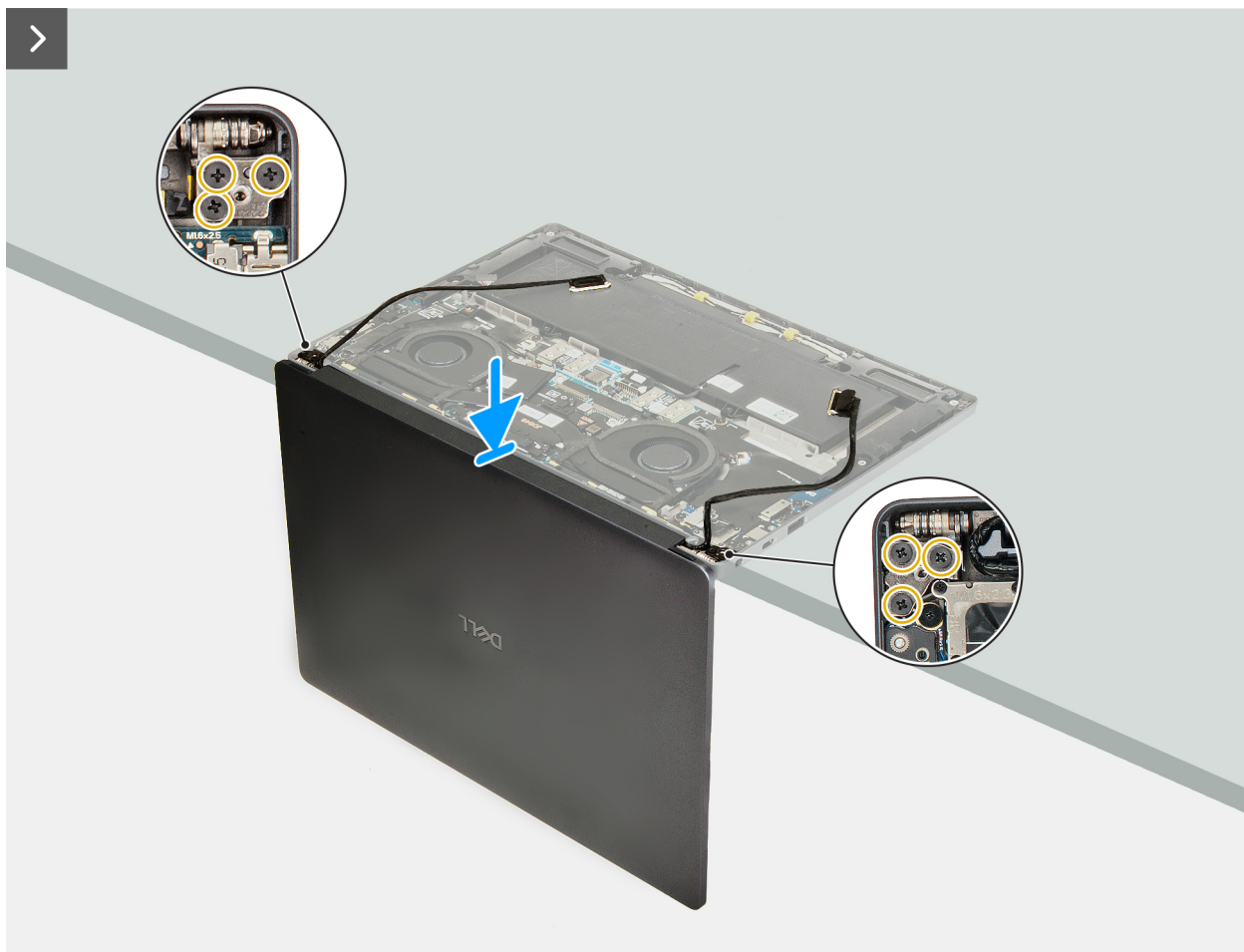
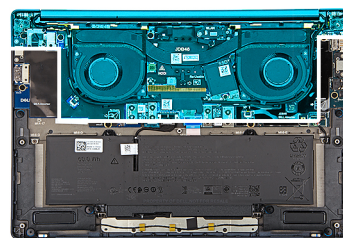
The following images indicate the location of the display assembly and provide a visual representation of the installation procedure.



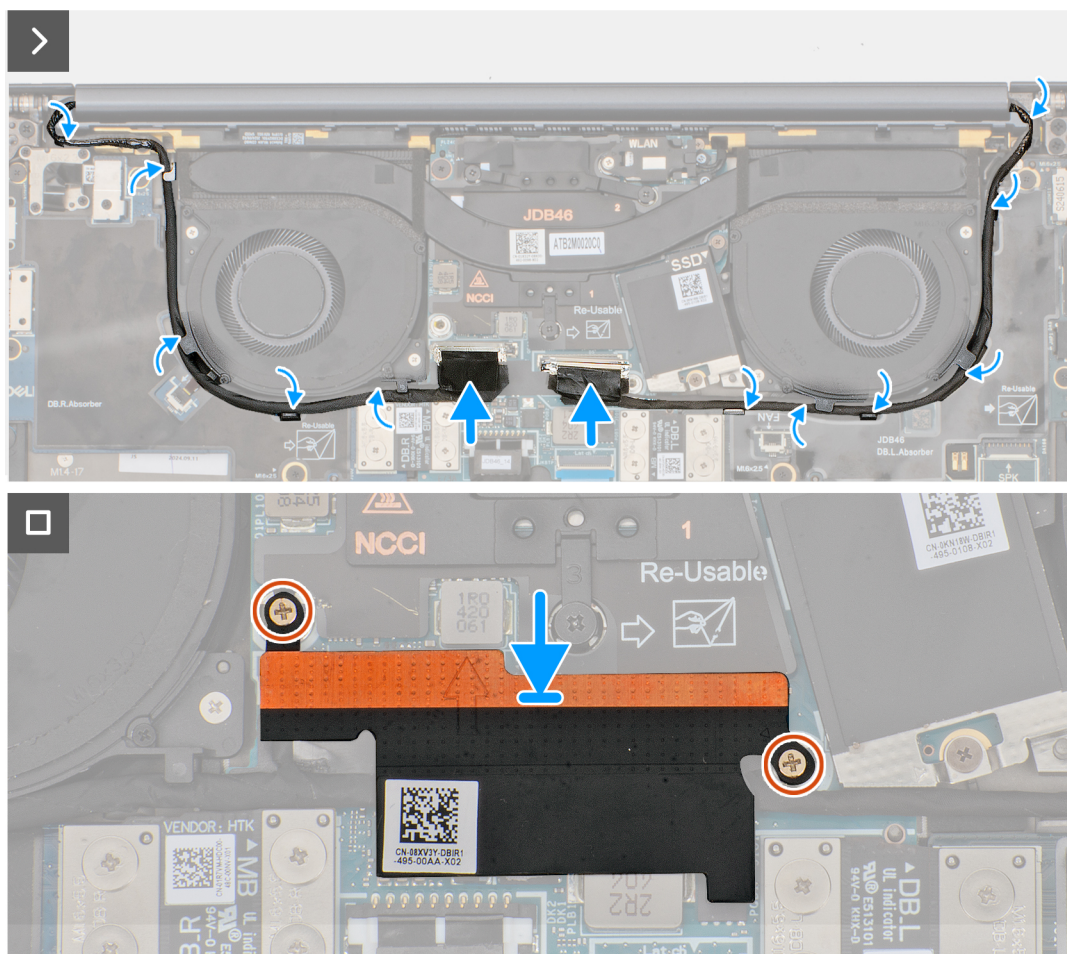
2x



6x
M2.5x5



Obrázok 62. Installing the display assembly



Obrázok 63. Connecting the display and camera cables

Postup

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.

Ďalší postup

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

Systémová doska

Removing the system board

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

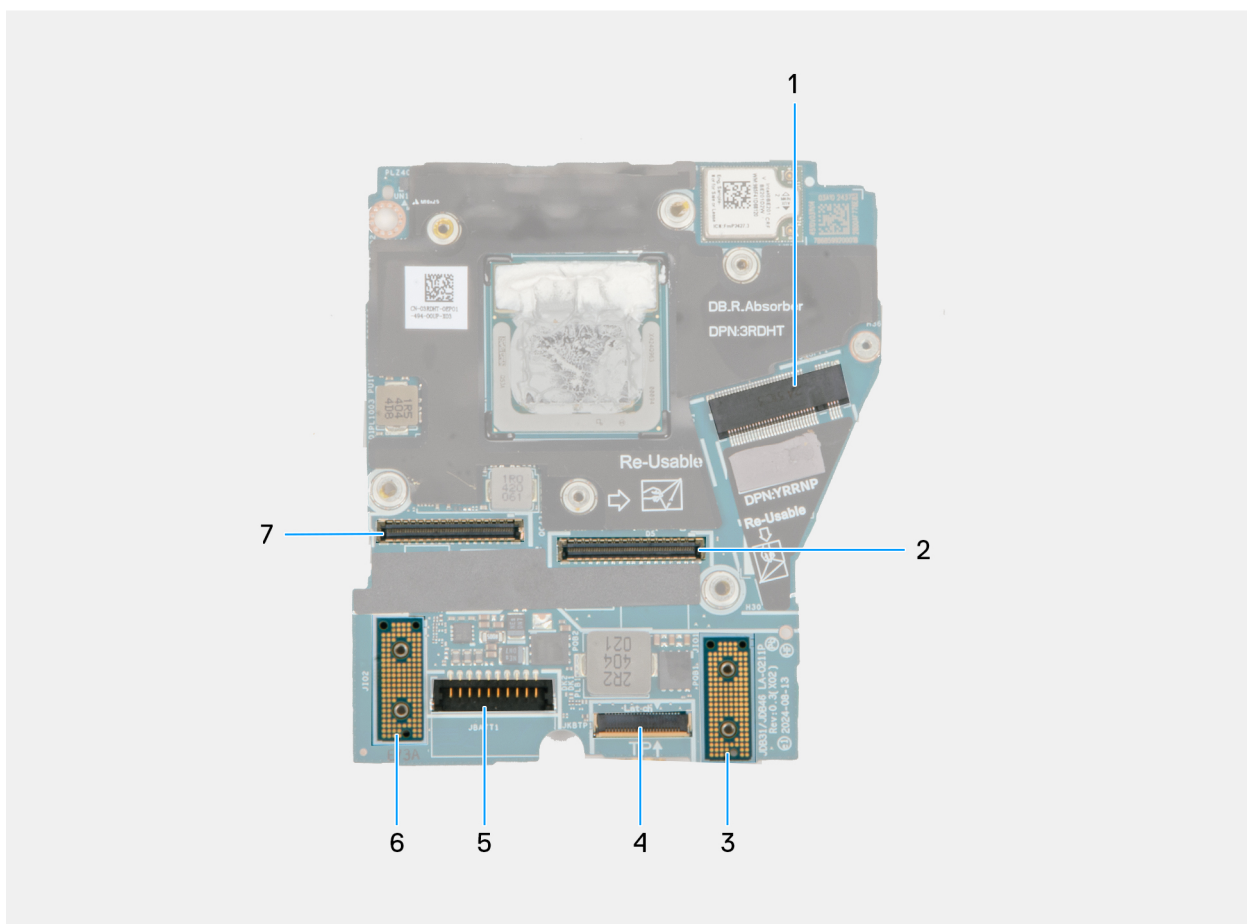
Požiadavky

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](#).

POZNÁMKA: 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.

O tejto úlohe

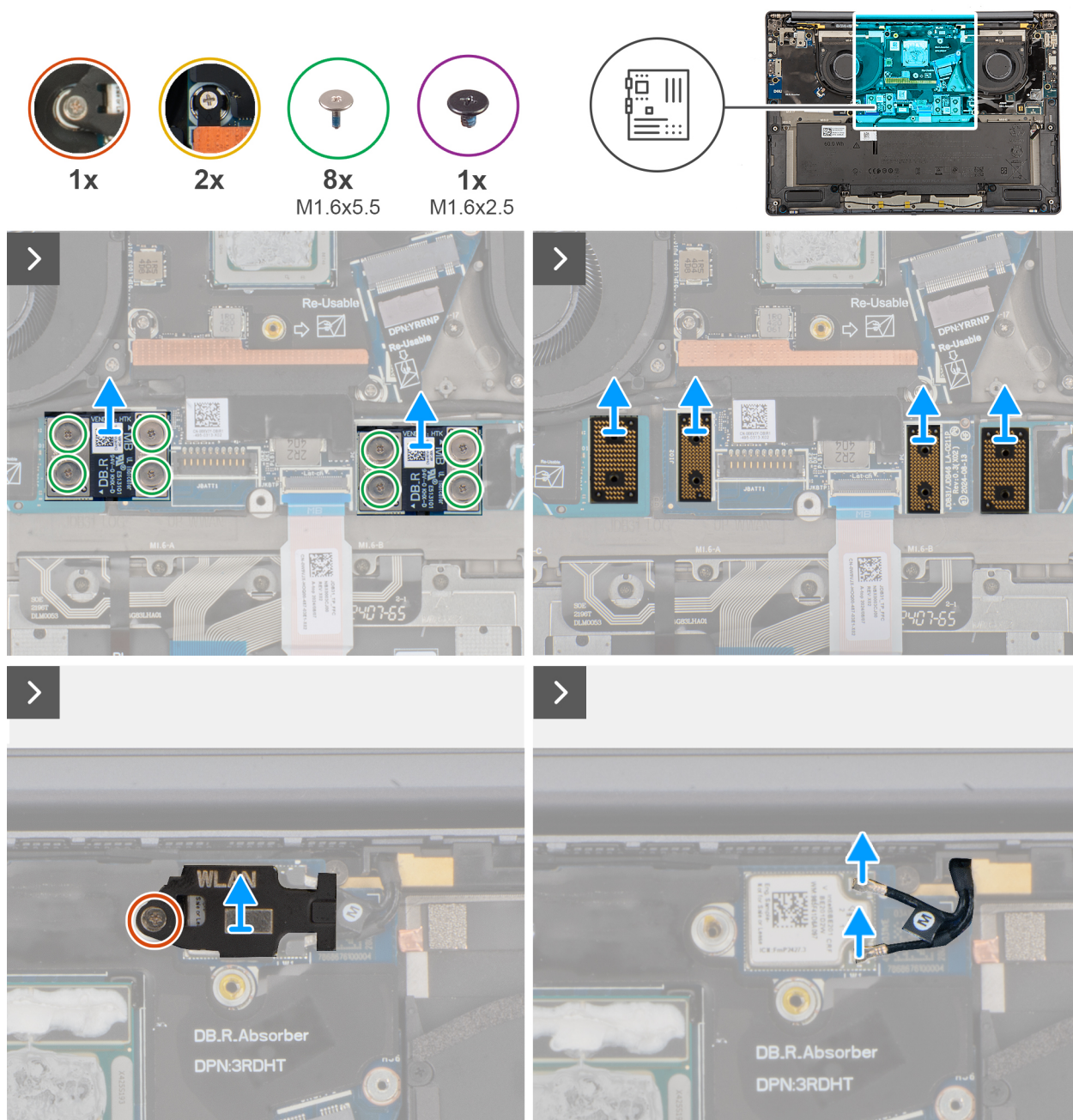
The following image indicates the connectors on your system board.



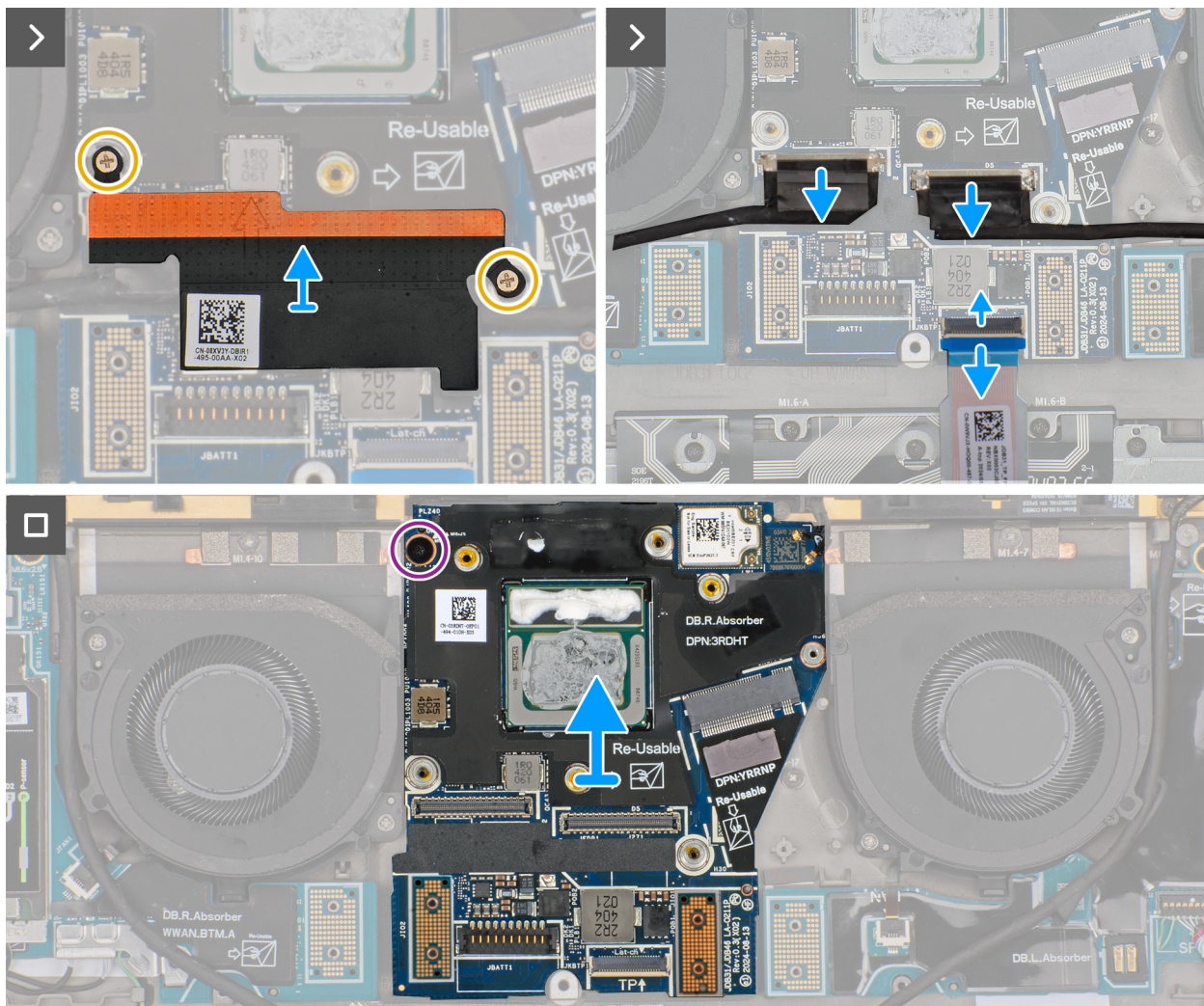
Obrázok 64. System board callout

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.



Obrázok 65. Removing the system board



Obrázok 66. Removing the system board

Postup

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.

POZNÁMKA: 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.

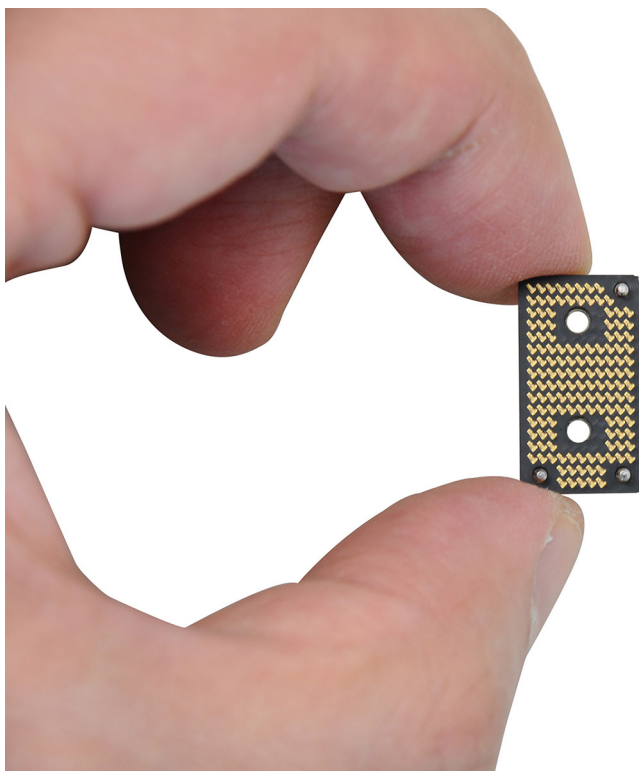
POZNÁMKA: When reinstalling the left I/O-board cable connectors, align the connector so that the side labeled 'MB' is connected to the system board, and the side labeled **DB-L** is connected to the left I/O-board.

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.

VAROVANIE: 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.

POZNÁMKA: 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.



Obrázok 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.

POZNÁMKA: 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.

POZNÁMKA: 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

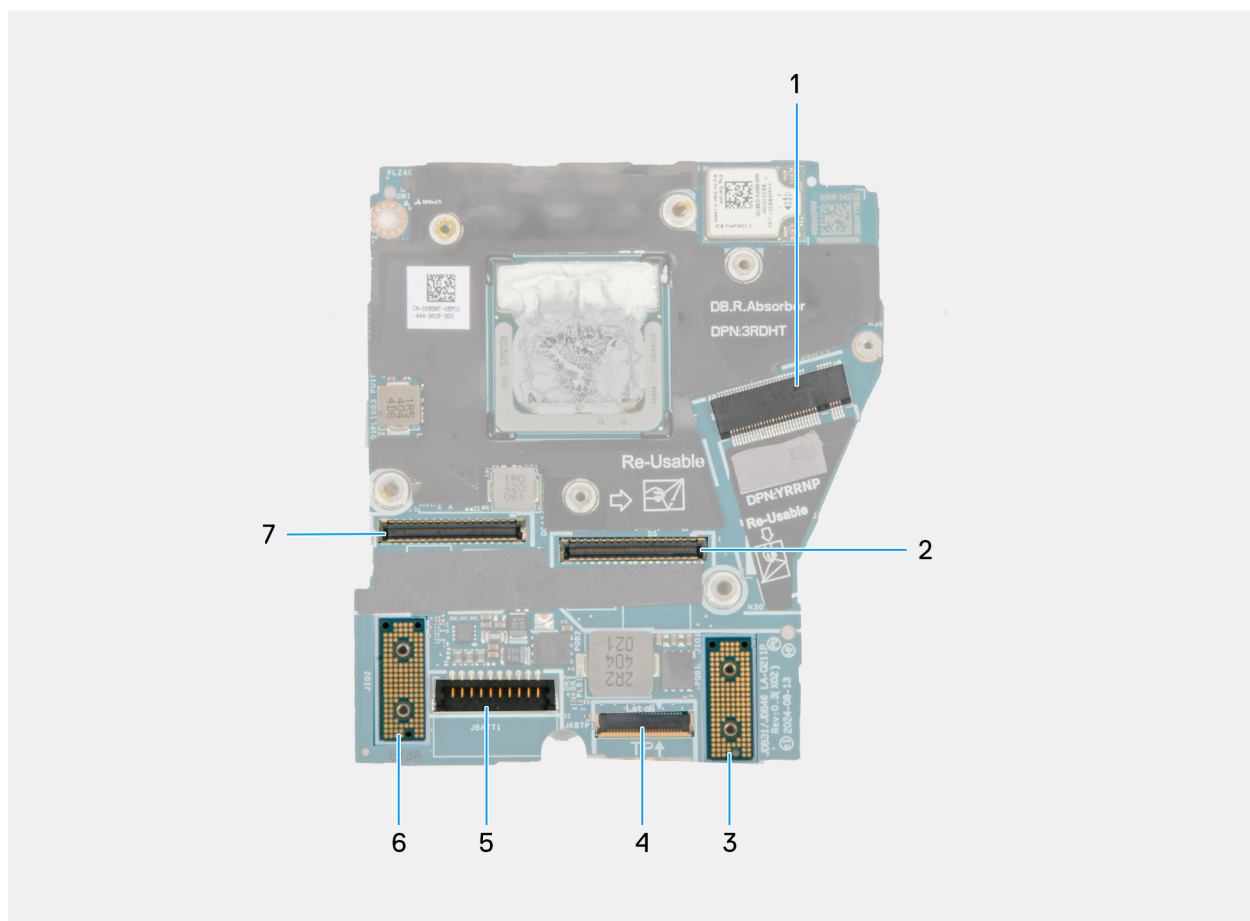
VAROVANIE: The information in this section is intended for authorized service technicians only.

Požiadavky

Ak sa chystáte vymeniť niektorý komponent počítača, pred montážou podľa krokov v príslušnom návode najskôr z počítača odstráňte komponent, ktorý chcete nahradiť.

O tejto úlohe

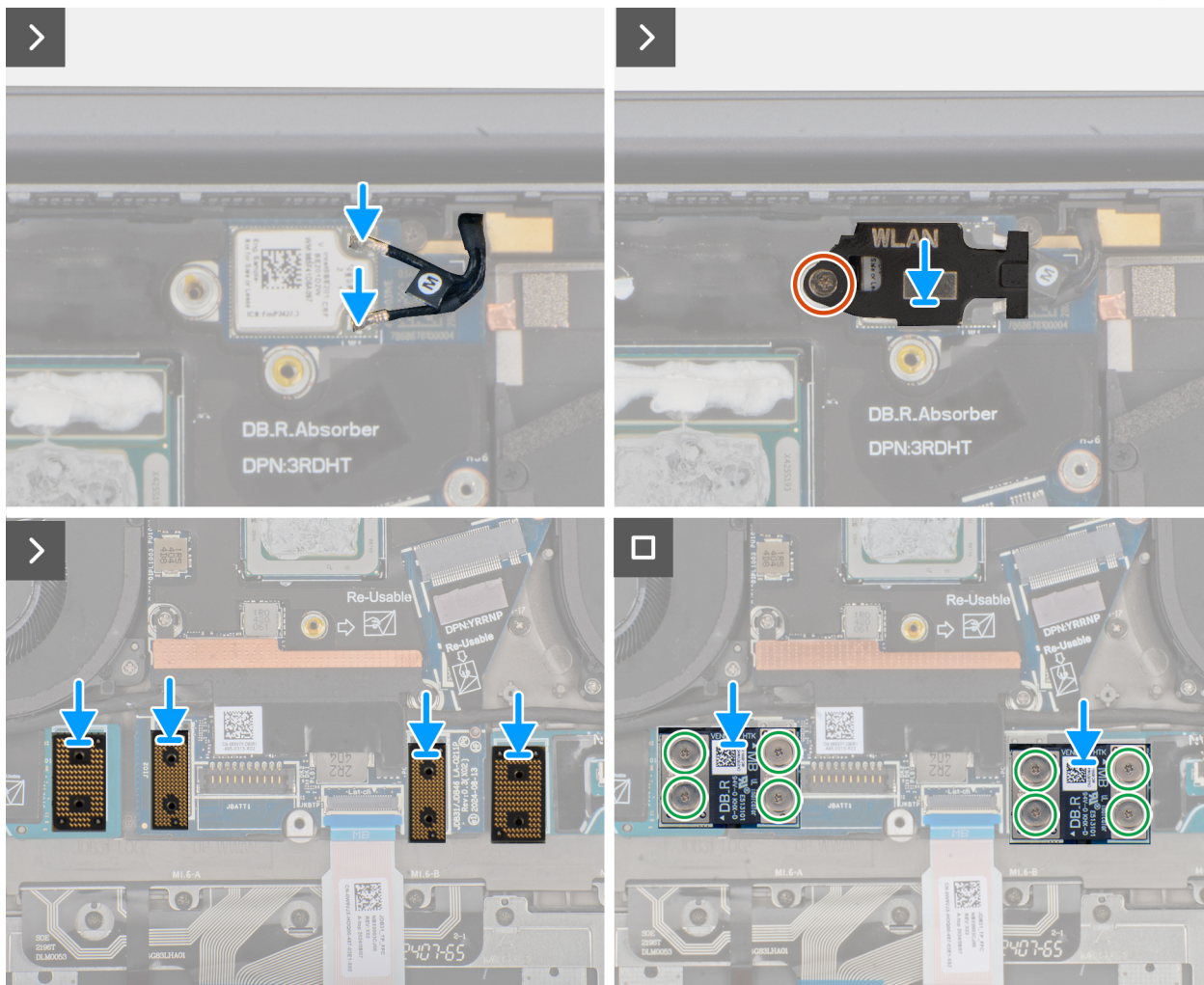
The following image indicates the connectors on your system board.



Obrázok 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.

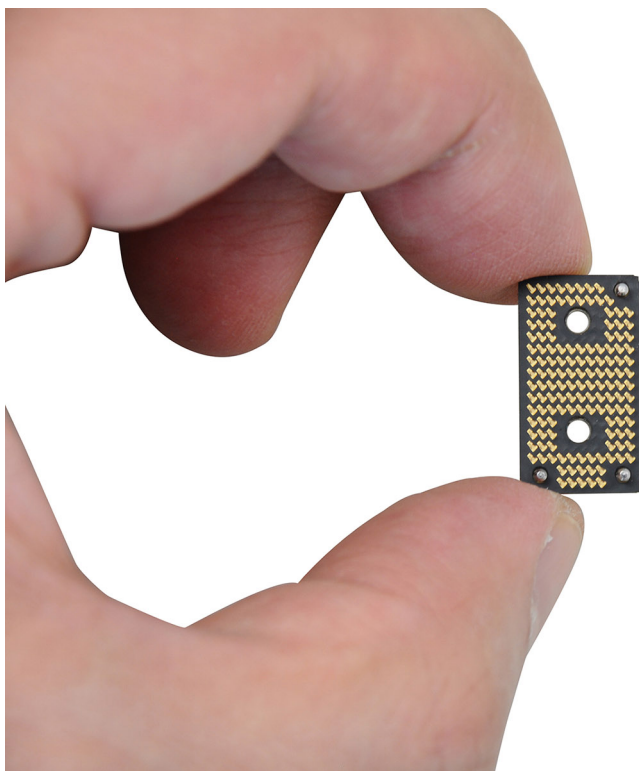


Obrázok 70. Installing the system board

Postup

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.

POZNÁMKA: 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.



Obrázok 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.

i **POZNÁMKA:** You must apply the XPG gel to the DRAMs of the CPU package.

Ďalší postup

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](#).

Klávesnica

Removing the keyboard assembly

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

Požiadavky

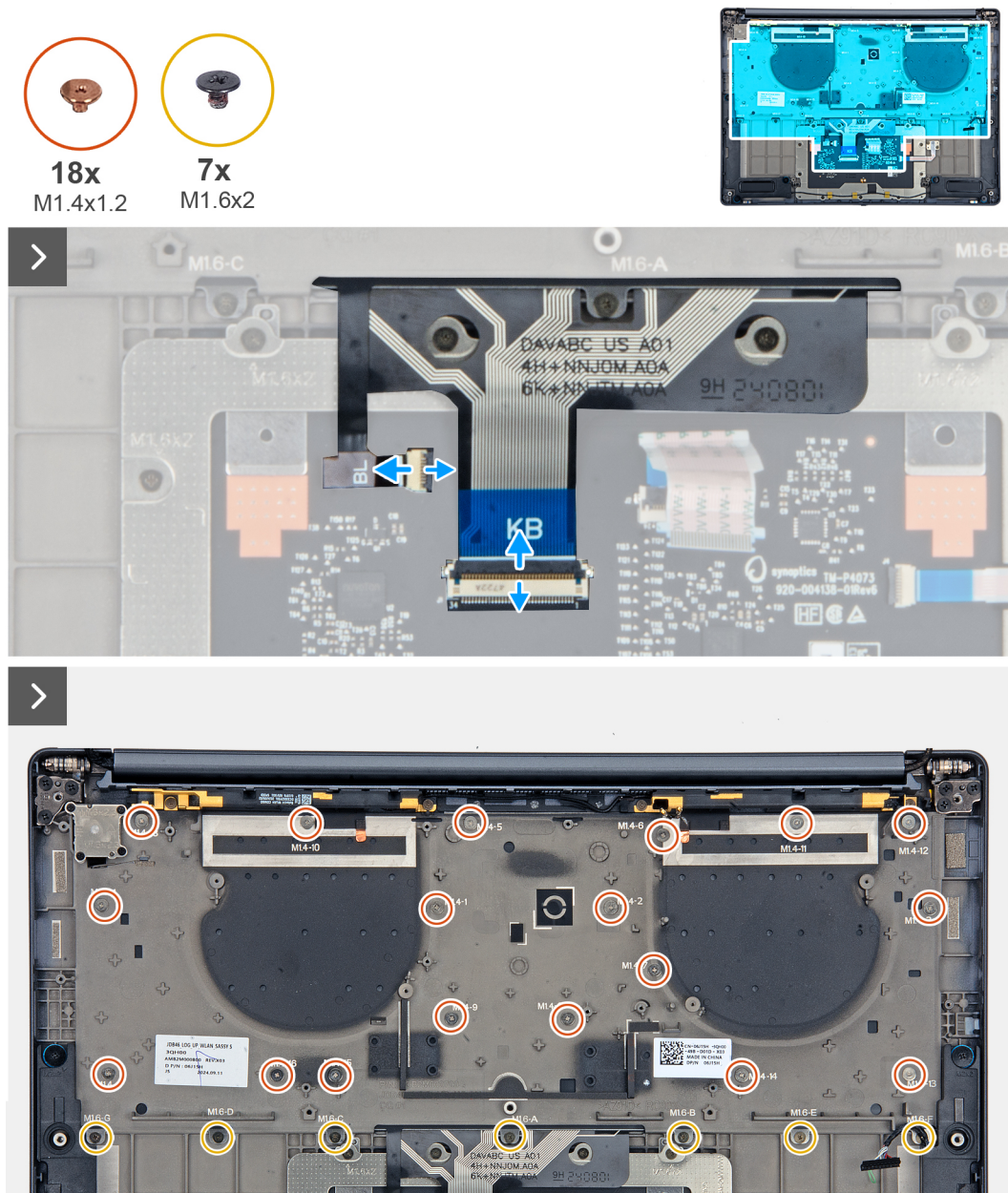
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [M.2 2230 solid state drive](#).
4. Remove the [nano-SIM card tray](#) and [nano-SIM card](#) (for computers shipped with WWAN card).
5. Remove the [WWAN card](#) (for the computer shipped 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**.

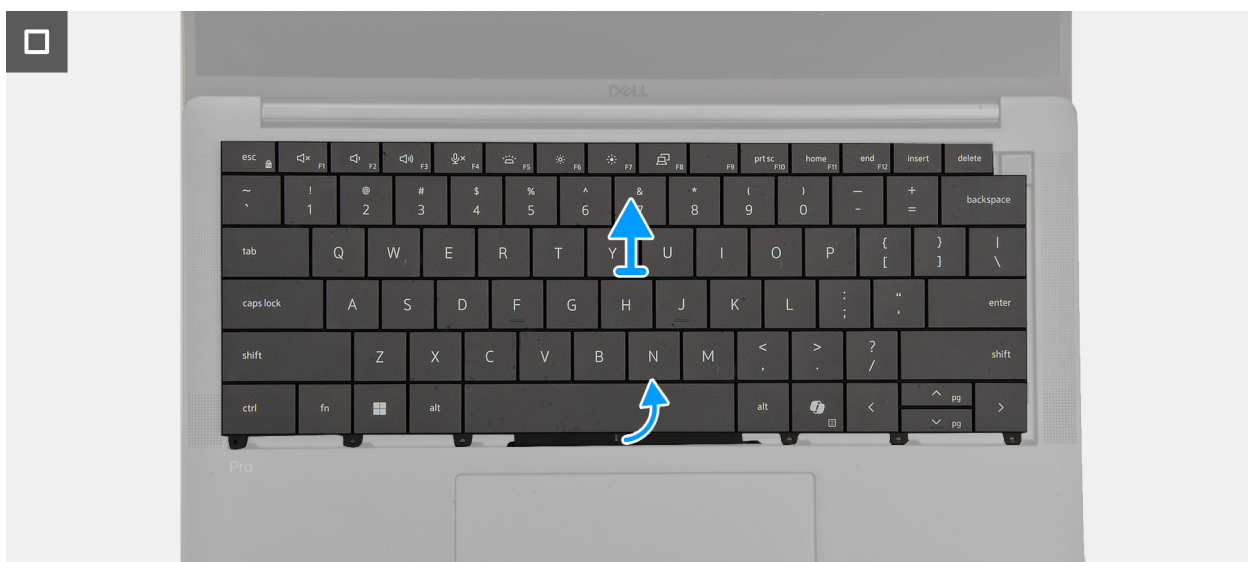
POZNÁMKA: When removing the system board to replace or access other parts, the system board can be removed and installed with the heat sink attached to simplify the procedure and preserve the thermal bond between the system board and heat sink.

O tejto úlohe

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



Obrázok 72. Removing the keyboard assembly



Obrázok 73. Removing the keyboard assembly

Postup

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

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

Požiadavky

Ak sa chystáte vymeniť niektorý komponent počítača, pred montážou podľa krokov v príslušnom návode najskôr z počítača odstráňte komponent, ktorý chcete nahradiť.

O tejto úlohe

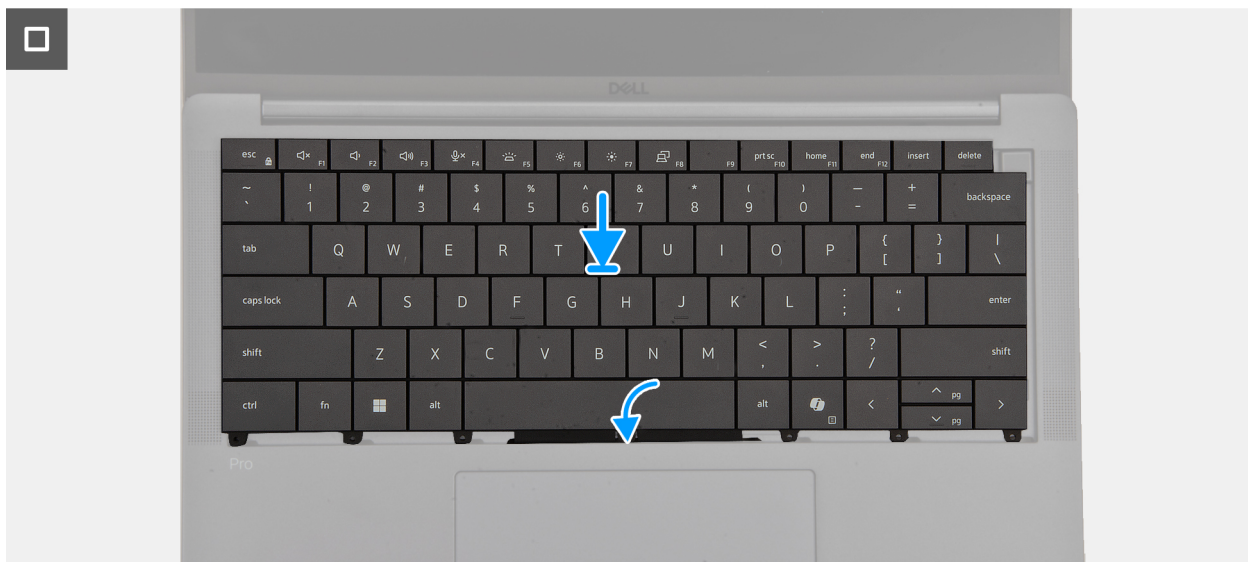
The following images indicate the location of the keyboard and provide a visual representation of the installation procedure.



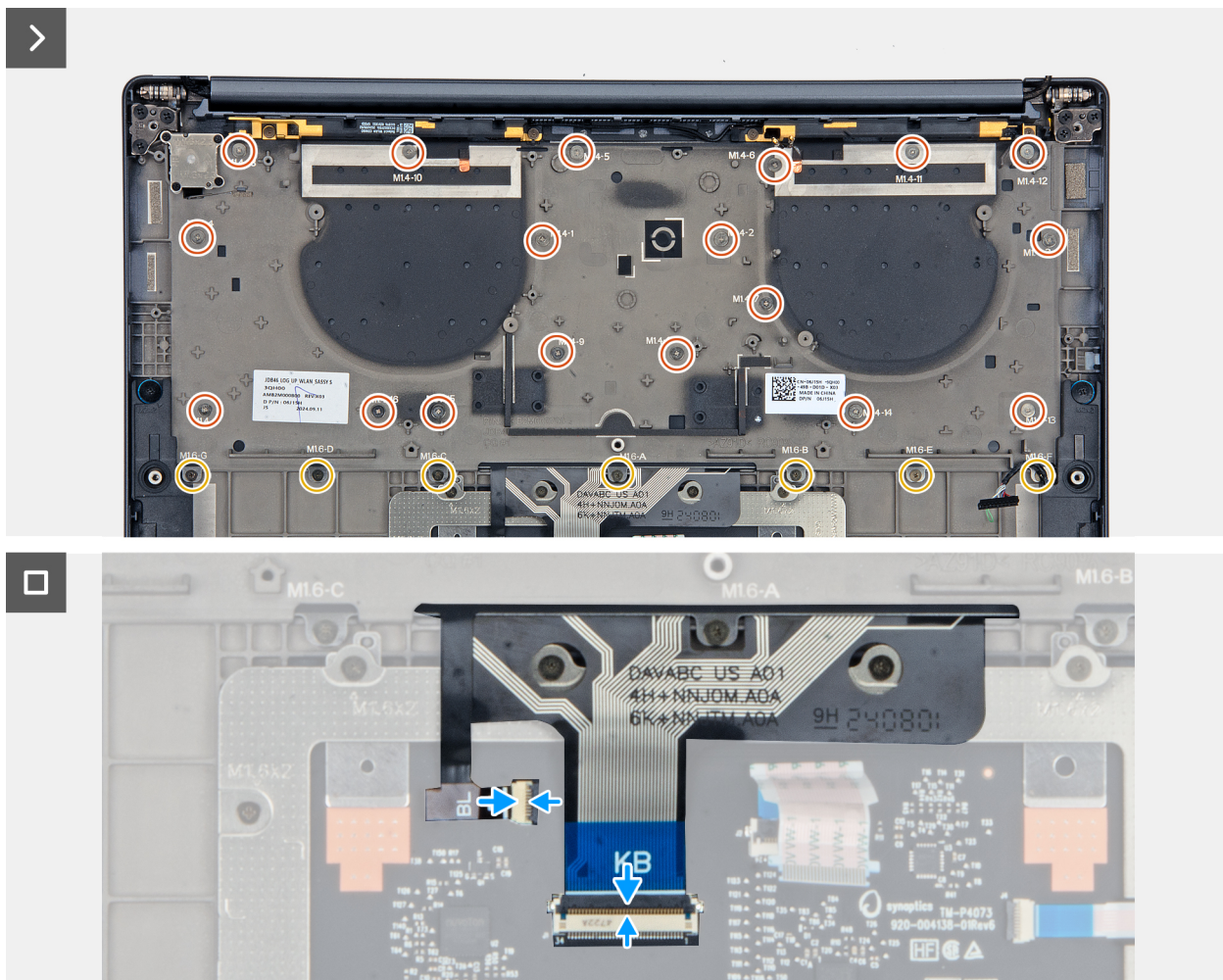
18x
M1.4x1.2



7x
M1.6x2



Obrázok 74. Installing the keyboard assembly



Obrázok 75. Installing the keyboard assembly

Postup

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.

Ďalší postup

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](#).

Zostava opierky dlani

Removing the palm-rest assembly

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

Požiadavky

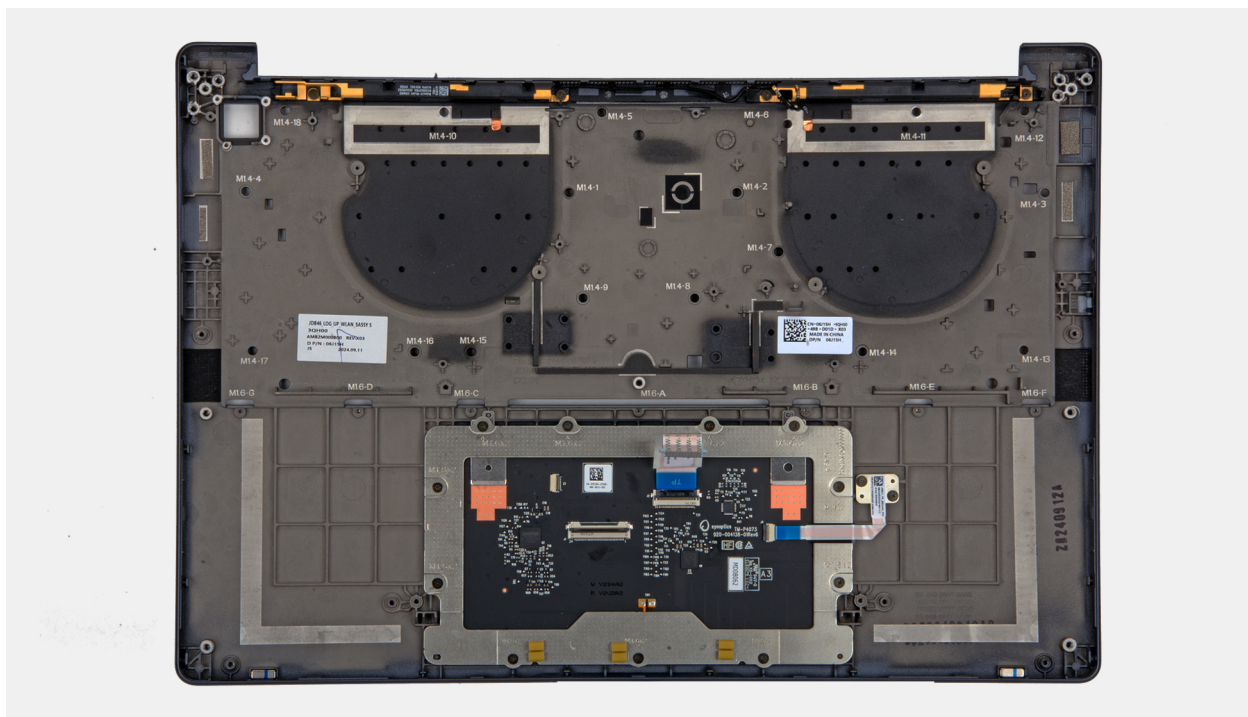
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [M.2 2230 solid-state drive](#).
4. Remove the [nano-SIM card tray](#) and [nano-SIM card](#) (for the computer shipped with WWAN card).
5. Remove the [WWAN card](#) (for the computer shipped 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](#).

 **POZNÁMKA:** 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.

O tejto úlohe

 **POZNÁMKA:** 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.



Obrázok 76. Palm-rest

Postup

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

Installing the palm-rest assembly

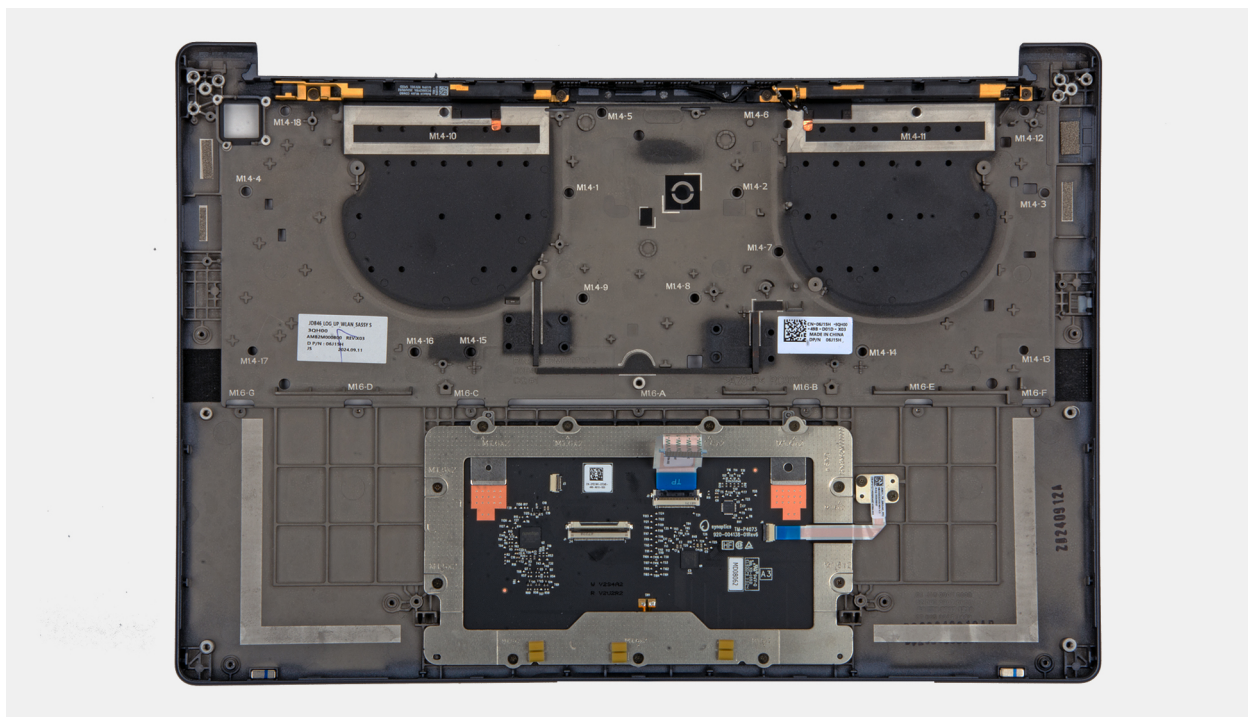
VAROVANIE: The information in this section is intended for authorized service technicians only.

Požiadavky

Ak sa chystáte vymeniť niektorý komponent počítača, pred montážou podľa krokov v príslušnom návode najskôr z počítača odstráňte komponent, ktorý chcete nahradiť.

O tejto úlohe

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



Obrázok 77. Palm-rest

Postup

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

Ďalší postup

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](#).

Táto kapitola uvádza podporované operačné systémy spolu s pokynmi na inštaláciu ovládačov.

Operačný systém

Váš počítač Dell Pro 14 Premium PA14250 podporuje tieto operačné systémy:

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

i POZNÁMKA: 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.

Ovládače a súbory na stiahnutie

Pri riešení problémov, sťahovaní ovládačov alebo ich inštalácii odporúčame, aby ste si prečítali článok v databáze poznatkov firmy Dell s názvom Najčastejšie otázky o ovládačoch a súboroch na stiahnutie (v angličtine) s číslom [000123347](#).

Nastavenie systému BIOS

POZNÁMKA: V závislosti od tohto počítača a nainštalovaných zariadení sa možnosti uvedené v tejto časti môžu, ale nemusia zobrazovať.

VAROVANIE: Niektoré zmeny môžu spôsobiť, že počítač nebude správne fungovať. Skôr než začnete meniť nastavenia systému BIOS, odporúčame vám poznačiť si pôvodné nastavenia, keby ste ich v budúcnosti potrebovali.

Program na nastavenie systému BIOS možno použiť na:

- získanie informácií o hardvéri nainštalovanom vo vašom počítači, napríklad o veľkosti pamäte RAM a veľkosti ukladacieho zariadenia,
- zmenu informácií o konfigurácii systému,
- nastavenie alebo zmenu používateľských možností, napríklad používateľského hesla, typu nainštalovaného ukladacieho zariadenia, zapnutie alebo vypnutie základných zariadení a podobne.

Entering BIOS Setup program

Turn on or restart your computer and press F2 immediately.

Navigačné klávesy

POZNÁMKA: Pri väčšine možností nastavení BIOS sa vykonané zmeny zaznamenajú, no neprejavia sa dovedty, kým nereštartujete počítač.

Tabuľka32. Navigačné klávesy

Klávesy	Navigácia
Šípka nahor	Prejde na predchádzajúce pole.
Šípka nadol	Prejde na nasledujúce pole.
Enter	Vyberie hodnotu vo zvolenom poli (ak je to možné) alebo nasleduje prepojenie v poli.
Medzerník	Rozbalí alebo zbalí rozbaľovací zoznam, ak je k dispozícii.
Karta	Presunie kurzor do nasledujúcej oblasti.
Kláves Esc	Prejde na predchádzajúcu stránku, až kým sa nezobrazí hlavná obrazovka. Stlačením klávesu Esc na hlavnej obrazovke sa zobrazí výzva na uloženie všetkých neuložených zmien a reštartovanie počítača.

Ponuka jednorazového spustenia systému otváraná klávesom F12

Ak chcete zobraziť ponuku jednorazového spustenia systému, zapnite alebo reštartujte počítač a okamžite stlačte kláves F12.

POZNÁMKA: Ak nemôžete vstúpiť do ponuky na jednorazové spustenie systému, zopakujte vyššie uvedený úkon.

Ponuka na jednorazové spustenie systému zobrazí zariadenia, z ktorých je možné spustiť systém, ako aj možnosti spustenia diagnostiky. Možnosti ponuky spúšťania systému sú:

- Vymeniteľná jednotka (ak je k dispozícii)

- Jednotka STXXXX (ak je k dispozícii)

POZNÁMKA: XXX označuje číslo jednotky SATA.

- Optická jednotka (ak je k dispozícii)
- Pevný disk SATA (ak je k dispozícii)
- Diagnostika

Ponuka na jednorazové spustenie systému zobrazuje aj možnosť prechodu do nastavení systému BIOS.

View Advanced Setup options

O tejto úlohe

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

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

To enable Advanced Setup:

Postup

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

O tejto úlohe

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

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

To view Service options:

Postup

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

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

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

Tabuľka33. 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.

Tabuľka33. System Setup options—Overview menu (pokračovanie)

Overview	
Asset Tag	Displays the Asset Tag of the computer.
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.  POZNÁMKA: 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.  POZNÁMKA: To view this option, enable Service options as described in View Service options.
Current Clock Speed	Displays the current processor clock speed.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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	

Tabuľka33. System Setup options—Overview menu (pokračovanie)

Overview	
Memory Installed	Displays the total memory installed on the computer.
Memory Available	Displays the total memory available on the computer.  POZNÁMKA: 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.  POZNÁMKA: To view this option, enable Service options as described in View Service options .
Memory Technology	Displays the technology that is used for the memory.  POZNÁMKA: 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.  POZNÁMKA: 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.

Tabuľka34. 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	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.
Enable Secure Boot	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.  POZNÁMKA: To enable Secure Boot, the computer must be in UEFI boot mode and the Enable Legacy Option ROMs option must be turned off.

Tabuľka34. System Setup options—Boot Configuration menu (pokračovanie)

Boot Configuration	
Enable Microsoft UEFI CA	When disabled, the UEFI CA is removed from the BIOS UEFI Secure Boot database.  VAROVANIE: 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.  POZNÁMKA: 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.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabuľka35. 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.  POZNÁMKA: 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.  POZNÁMKA: 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.

Tabuľka35. System Setup options—Integrated Devices menu (pokračovanie)

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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.

Tabuľka35. System Setup options—Integrated Devices menu (pokračovanie)

Integrated Devices	
	By default, the Type-C Dock LAN option is enabled. POZNÁMKA: 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. POZNÁMKA: On computers with collaboration touchpad, the Collaboration Touchpad is disabled when the Unobtrusive Mode option is enabled. POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabuľka36. 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. POZNÁMKA: 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. POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Drive Information	Displays the information of onboard drives.

Tabuľka37. 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. POZNÁMKA: 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.

Tabuľka37. System Setup options—Display menu (pokračovanie)

Display	
	 POZNÁMKA: 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.  POZNÁMKA: Only available on computers with touch screen displays.  POZNÁMKA: 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.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabuľka38. 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.

Tabuľka38. System Setup options—Connection menu (pokračovanie)

Connection	
	By default, the Control WWAN Radio option is disabled.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Boot URL	Displays the URL of boot path.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
CA Certificate	Upload or delete the CA certificate.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabuľka39. 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.  POZNÁMKA: 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.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Peak Shift	

Tabuľka39. System Setup options—Power menu (pokračovanie)

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. POZNÁMKA: 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. POZNÁMKA: 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. POZNÁMKA: 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. POZNÁMKA: 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. POZNÁMKA: 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. POZNÁMKA: 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. POZNÁMKA: 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.

Tabuľka39. System Setup options—Power menu (pokračovanie)

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

Tabuľka40. 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.  POZNÁMKA: 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.  POZNÁMKA: When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems.  POZNÁMKA: 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.  POZNÁMKA: When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems.  POZNÁMKA: 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.  POZNÁMKA: 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.

Tabuľka40. System Setup options—Security menu (pokračovanie)

Security	
	For additional security, Dell Technologies recommends keeping the PPI Bypass for Clear Commands option disabled.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Intel Total Memory Encryption Multi-Key Total Memory Eryption (Up to 16Keys)	Enables or disables the processor's memory encryption feature. By default, the Multi-Key Total Memory Eryption (Up to 16Keys) option is disabled.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: This feature may cause compatibility issues or loss of functionality with some legacy tools and applications.  POZNÁMKA: 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.  VAROVANIE: 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

Tabuľka40. System Setup options—Security menu (pokračovanie)

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.  POZNÁMKA: 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.  POZNÁMKA: This option is applicable with laptops shipped with SED.  POZNÁMKA: 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.  VÝSTRAHA: 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.  POZNÁMKA: The Enable/Disable options are unavailable while the computer is in the activated state.  POZNÁMKA: 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.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Authenticated BIOS Interface Enable Authenticated BIOS Interface Clear Certificate Store Legacy Manageability Interface Access	Enables or disables the authenticated BIOS Interface.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options. Deletes the certificate.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options. Helps to access the Legacy Manageability Interface.

Tabuľka40. System Setup options—Security menu (pokračovanie)

Security	
Firmware Device Tamper Detection	 POZNÁMKA: 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.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabuľka41. 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

Tabuľka 41. System Setup options—Passwords menu (pokračovanie)

Passwords	
 POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Password Changes	

Tabuľka41. System Setup options—Passwords menu (pokračovanie)

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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: When the owner password is set, the Master Password Lockout option is not available.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabuľka42. 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.  POZNÁMKA: Once set in the BIOS, the Asset Tag cannot be changed.

Tabuľka42. System Setup options—System Management menu (pokračovanie)

System Management	
Wake on AC	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. POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.
Wake on LAN	Enables or disables the computer to turn on by a special LAN signal. By default, the Wake on LAN option is disabled. POZNÁMKA: 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. POZNÁMKA: 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. POZNÁMKA: 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. POZNÁMKA: 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. POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabuľka43. 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. POZNÁMKA: 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. POZNÁMKA: 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.

Tabuľka43. System Setup options—Keyboard menu (pokračovanie)

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. i POZNÁMKA: 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. i POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabuľka44. 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. i POZNÁMKA: 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. i POZNÁMKA: 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. i POZNÁMKA: 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.

Tabuľka44. System Setup options—Pre-boot Behavior menu (pokračovanie)

Pre-boot Behavior	
	 POZNÁMKA: 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.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options .

Tabuľka45. 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: To view this option, enable Service options as described in View Service options .

Tabuľka46. 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.

Tabuľka46. System Setup options—System Logs menu (pokračovanie)

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.

Tabuľka47. 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. i POZNÁMKA: 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. i POZNÁMKA: 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. i POZNÁMKA: BIOS Recovery from Hard Drive is not available for self-encrypting drives (SED). i POZNÁMKA: 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. i POZNÁMKA: 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. i POZNÁMKA: 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 .

Tabuľka48. 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: This option is provided only for compatibility purposes, since some older hardware is not DMA capable.  POZNÁMKA: 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.  POZNÁMKA: 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.  POZNÁMKA: This option is provided only for compatibility purposes, since some older hardware is not DMA capable.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Tabuľka48. System Setup options—Virtualization menu (pokračovanie)

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.  POZNÁMKA: 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.  POZNÁMKA: This option is provided only for compatibility purposes, as certain older hardware may not be DMA compliant.  POZNÁMKA: To view this option, enable Advanced Setup mode as described in View Advanced Setup options.

Aktualizácia systému BIOS

Aktualizácia systému BIOS v systéme Windows

Postup

1. Navštívte [webovú lokalitu podpory firmy Dell](#).
2. Prejdite na položku **Identifikácia produktu alebo vyhľadanie podpory**. Do poľa zadajte identifikátor produktu, model, servisnú požiadavku alebo opíšte, čo hľadáte, a potom kliknite na tlačidlo **Vyhľadať**.

 **POZNÁMKA:** Ak nemáte servisný tag, použite nástroj SupportAssist na automatické rozpoznanie svojho počítača. Takisto môžete zadať identifikátor svoju produktu alebo pohladať model svojho počítača manuálne.
3. Kliknite na položku **Ovládače a súbory na stiahnutie**. Rozbaľte položku **Nájsť ovládače**.
4. Zvoľte operačný systém, ktorý máte nainštalovaný vo svojom počítači.
5. V rozbaľovacom zozname **Kategória** vyberte položku **BIOS**.
6. Vyberte najnovšiu verziu systému BIOS a kliknite na položku **Stiahnuť** a stiahnite si súbor so systémom BIOS do počítača.
7. Po dokončení sťahovania prejdite do priečinka, do ktorého ste uložili aktualizčný súbor systému BIOS.
8. Dvakrát kliknite na ikonu aktualizčného súboru systému BIOS a postupujte podľa pokynov na obrazovke.

Viac informácií o postupe aktualizácie systému BIOS v počítači nájdete v databáze poznatkov [na webovej lokalite podpory firmy Dell](#).

Aktualizácia systému BIOS pomocou USB kľúča v prostredí systému Windows

Postup

1. Navštívte [webovú lokalitu podpory firmy Dell](#).
2. Prejdite na položku **Identifikácia produktu alebo vyhľadanie podpory**. Do poľa zadajte identifikátor produktu, model, servisnú požiadavku alebo opíšte, čo hľadáte, a potom kliknite na tlačidlo **Vyhľadať**.

 **POZNÁMKA:** Ak nemáte servisný tag, použite funkciu SupportAssist na automatické rozpoznanie svojho počítača. Takisto môžete zadať identifikátor svoju produktu alebo pohladať model svojho počítača manuálne.
3. Kliknite na položku **Ovládače a súbory na stiahnutie**. Rozbaľte položku **Nájsť ovládače**.
4. Zvoľte operačný systém, ktorý máte nainštalovaný vo svojom počítači.
5. V rozbaľovacom zozname **Kategória** vyberte položku **BIOS**.

6. Vyberte najnovšiu verziu systému BIOS a kliknite na položku **Stiahnuť** a stiahnite si súbor so systémom BIOS do počítača.
7. Vytvorte si spustiteľný kľúč USB. Viac informácií nájdete v databáze poznatkov na [webovej lokalite podpory firmy Dell](#).
8. Skopírujte súbor s programom na inštaláciu systému BIOS na spustiteľný kľúč USB.
9. Pripojte spustiteľný kľúč USB k počítaču, v ktorom treba aktualizovať systém BIOS.
10. Reštartujte počítač a stlačte kláves **F12**.
11. V ponuke **Ponuka na jednorazové spustenie systému** vyberte USB kľúč.
12. Zadajte názov programu na inštaláciu systému BIOS a stlačte kláves **Enter**.
Zobrazí sa **Program na aktualizáciu systému BIOS**.
13. Aktualizáciu systému BIOS dokončíte podľa pokynov na obrazovke.

Aktualizácia systému BIOS v prostrediach systémov Linux a Ubuntu

Ak chcete aktualizovať systém BIOS v počítači s operačným systémom Linux alebo Ubuntu, pozrite si článok v databáze poznatkov s číslom [000131486](#) na [webovej lokalite podpory firmy Dell](#).

Aktualizácia systému BIOS z ponuky jednorazového spustenia systému

Aktualizáciu systému BIOS môžete spustiť zo systému Windows pomocou spustiteľného USB kľúča alebo systém BIOS môžete aktualizovať z ponuky jednorazového spustenia systému. Ak chcete aktualizovať systém BIOS počítača, skopírujte súbor BIOS XXXX.exe na jednotku USB naformátovanú pre systém súborov FAT32. Potom reštartujte počítač a spustíte systém z jednotky USB pomocou ponuky jednorazového spustenia systému.

O tejto úlohe

Aktualizácia systému BIOS

Ak chcete overiť, či je aktualizácia systému BIOS uvedená ako možnosť spustenia systému, môžete počítač spustiť do ponuky **jednorazového spustenia systému**. Ak je táto možnosť uvedená, potom je možné systém BIOS aktualizovať touto metódou.

Ak chcete aktualizovať systém BIOS pomocou klávesu, ktorý otvára ponuku jednorazového spustenia systému, budete potrebovať:

- USB kľúč naformátovaný v súborovom systéme FAT32 (disk nemusí byť spustiteľný),
- spustiteľný súbor systému BIOS, ktorý ste stiahli z webovej lokality podpory firmy Dell a skopírovali do koreňového adresára na USB kľúči,
- napájací adaptér musí byť pripojený k počítaču,
- funkčnú batériu v počítači na aktualizáciu systému BIOS.

Ak chcete aktualizovať systém BIOS z ponuky jednorazového spustenia systému, postupujte takto:

 **VAROVANIE:** Počítač počas aktualizácie systému BIOS nevypínajte. Ak počítač vypnete, môže sa stať, že sa nebude dať spustiť.

Postup

1. Vypnite počítač a vložte jednotku USB, ktorá obsahuje súbor s aktualizáciou systému BIOS.
2. Zapnite počítač a stlačením klávesu **F12** otvorte ponuku **jednorazového spustenia systému**. Pomocou myši alebo šípok na klávesnici vyberte položku **Aktualizácia systému BIOS** a stlačte kláves **Enter**.
Zobrazí sa ponuka aktualizácie systému BIOS.
3. Kliknite na položku **Aktualizovať zo súboru flash**.
4. Vyberte externé zariadenie USB.
5. Označte cieľový aktualizáčny súbor a dvakrát naň kliknite. Potom kliknite na položku **Odoslať**.
6. Kliknite na položku **Aktualizovať systém BIOS**. Počítač sa reštartuje a spustí sa aktualizácia systému BIOS.
7. Po dokončení aktualizácie systému BIOS sa počítač automaticky reštartuje.

Systémové heslo a heslo pre nastavenie

 **VAROVANIE:** Funkcie hesla poskytujú základnú úroveň zabezpečenia údajov vo vašom počítači.

 **VAROVANIE:** Skontrolujte, či je počítač uzamknutý, keď sa nepoužíva. Ak váš počítač nie je pod dohľadom, ktokoľvek môže získať prístup k údajom, ktoré v ňom máte uložené.

Tabuľka49. Systémové heslo a heslo pre nastavenie

Typ hesla	Opis
Systémové heslo	Heslo, ktoré musíte zadať na spustenie operačného systému.
Heslo pre nastavenie	Heslo, ktoré musíte zadať na otvorenie a zmenu nastavení systému BIOS počítača.

Môžete vytvoriť systémové heslo a heslo pre nastavenie pre zabezpečenie vášho počítača.

 **POZNÁMKA:** Funkcia systémového hesla a hesla pre nastavenie je predvolene vypnutá.

Nastavenie hesla nastavenia systému

Požiadavky

Nové systémové heslo alebo heslo správcu môžete vytvoriť len vtedy, ak je stav hesla nastavený na hodnotu **Nenastavené**. Ak chcete spustiť program na nastavenie systému BIOS, stlačte ihneď po zapnutí alebo reštartovaní systému kláves F2.

Postup

- Na obrazovke **Systém BIOS** alebo **Nastavenie systému** vyberte položku **Zabezpečenie** a stlačte kláves Enter. Zobrazí sa obrazovka **Zabezpečenie**.
- Vyberte položku **Systémové heslo/heslo správcu** a do poľa **Zadajte nové heslo** zadajte heslo. Pri vytváraní systémového hesla dodržujte nasledujúce pravidlá:
 - Heslo môže obsahovať maximálne 32 znakov.
 - Heslo môže obsahovať aspoň jeden špeciálny znak: „(! " # \$ % & ' * + , - . / : ; < = > ? @ [\] ^ _ ` { | })"“
 - Heslo môže obsahovať čísllice 0 až 9.
 - Heslo môže obsahovať veľké písmená od A po Z.
 - Heslo môže obsahovať malé písmená od a po z.
- Do poľa **Potvrdte nové heslo** zadajte heslo, ktoré ste zadali predtým, a kliknite na tlačidlo **OK**.
- Stlačením klávesu Y uložte zmeny. Počítač sa reštartuje.

Vymazanie alebo zmena existujúceho systémového hesla alebo hesla na nastavenie

Požiadavky

Pred pokusom o odstránenie alebo zmenu existujúceho systémového hesla a/alebo hesla na nastavenie sa uistite, že pri položke **Stav hesla** v nastaveniach systému je nastavená možnosť Odomknuté. Ak je pri položke **Stav hesla** vybratá možnosť Zamknuté, existujúce systémové heslo alebo heslo na nastavenie nie je možné vymazať ani zmeniť. Ak chcete spustiť program na nastavenie systému počítača, stlačte ihneď po zapnutí alebo reštartovaní systému kláves F2.

Postup

- Na obrazovke **Systém BIOS** alebo **Nastavenie systému** vyberte položku **Zabezpečenie systému** a stlačte kláves Enter. Zobrazí sa obrazovka **Zabezpečenie systému**.
- Na obrazovke **Zabezpečenie systému** skontrolujte, či je pri položke **Stav hesla** nastavená možnosť Odomknuté.
- Vyberte možnosť **Systémové heslo**. Zmeňte alebo vymažte existujúce systémové heslo a stlačte kláves Enter alebo Tab.

4. Vyberte položku **Heslo na nastavenie**. Zmeňte alebo vymažte existujúce heslo na nastavenie systému a stlačte kláves Enter alebo Tab.

POZNÁMKA: Ak zmeníte systémové heslo a/alebo heslo na nastavenie, po zobrazení výzvy ho opätovne zadajte. Ak vymažete systémové heslo a/alebo heslo na nastavenie, po zobrazení výzvy potvrdíte svoje rozhodnutie.

5. Stlačte kláves Esc. Zobrazí sa upozornenie, aby ste uložili zmeny.
6. Stlačením tlačidla Y uložte zmeny a ukončíte **Nastavenie systému**. Počítač sa reštartuje.

Odstránenie systémových hesiel a hesiel na nastavenie

O tejto úlohe

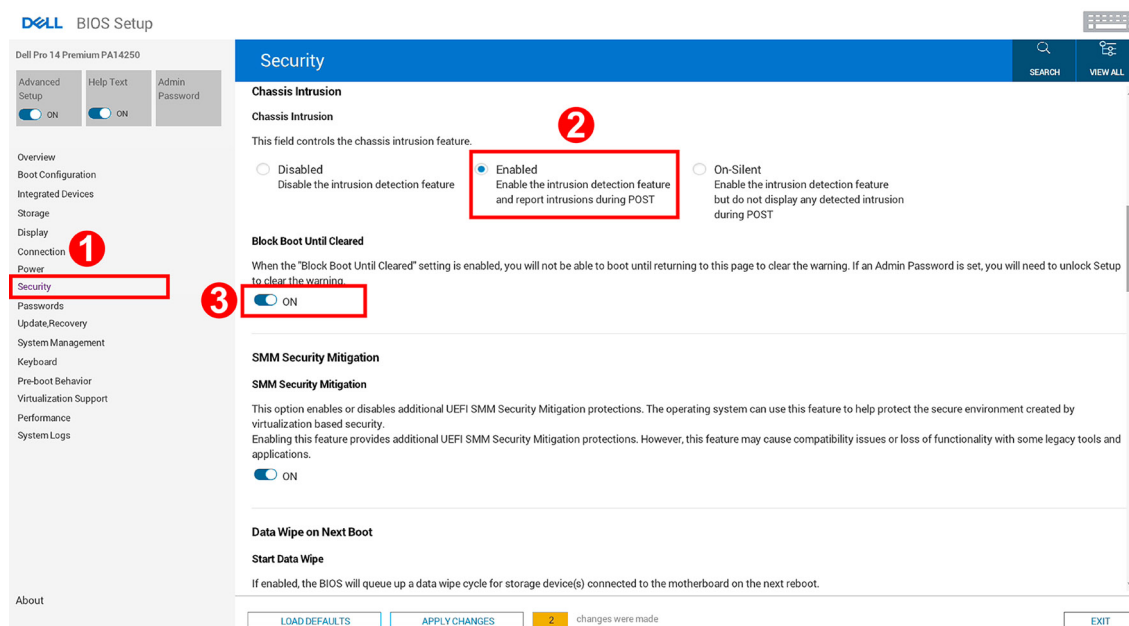
Ak chcete odstrániť systémové heslá a heslá na nastavenie, obráťte sa na oddelenie technickej podpory firmy Dell podľa pokynov v časti [Ako kontaktovať podporu](#).

POZNÁMKA: Ak chcete získať návod, ako resetovať heslá systému Windows alebo konkrétnych aplikácií, pozrite si dokumentáciu dostupnú pre systém Windows alebo konkrétne aplikácie.

Clearing Chassis Intrusion Alerts

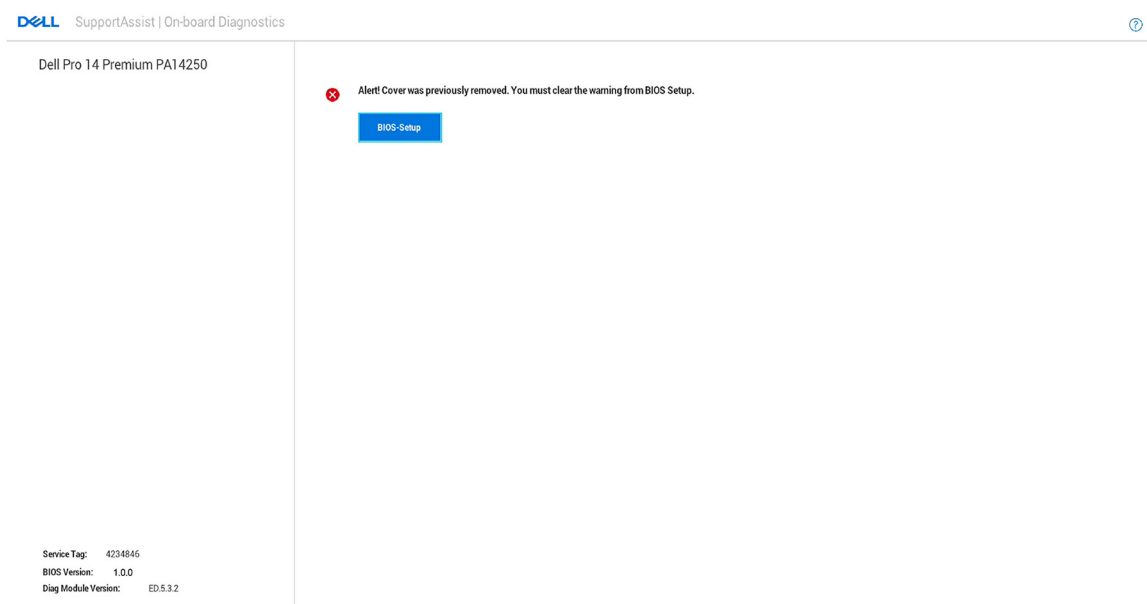
A chassis intrusion switch identifies whenever the system base cover has been removed. You can enable alerts about any intrusions through the **Chassis Intrusion** option in the Security submenu of the BIOS setup menu.

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



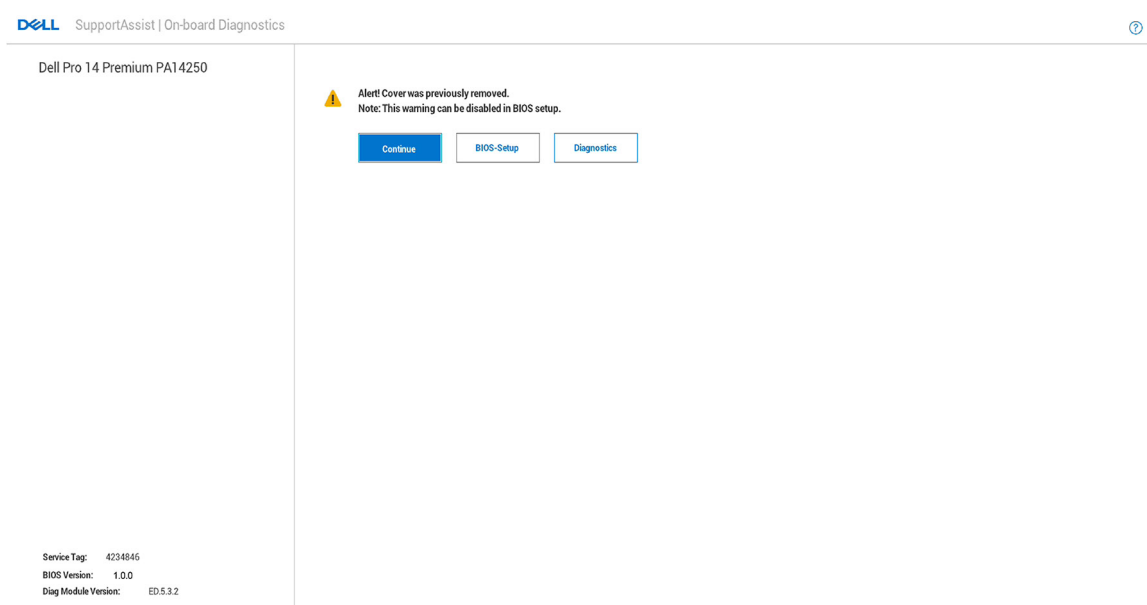
Obrázok 78. Block Boot Until Cleared

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.



Obrázok 79. BIOS-Setup

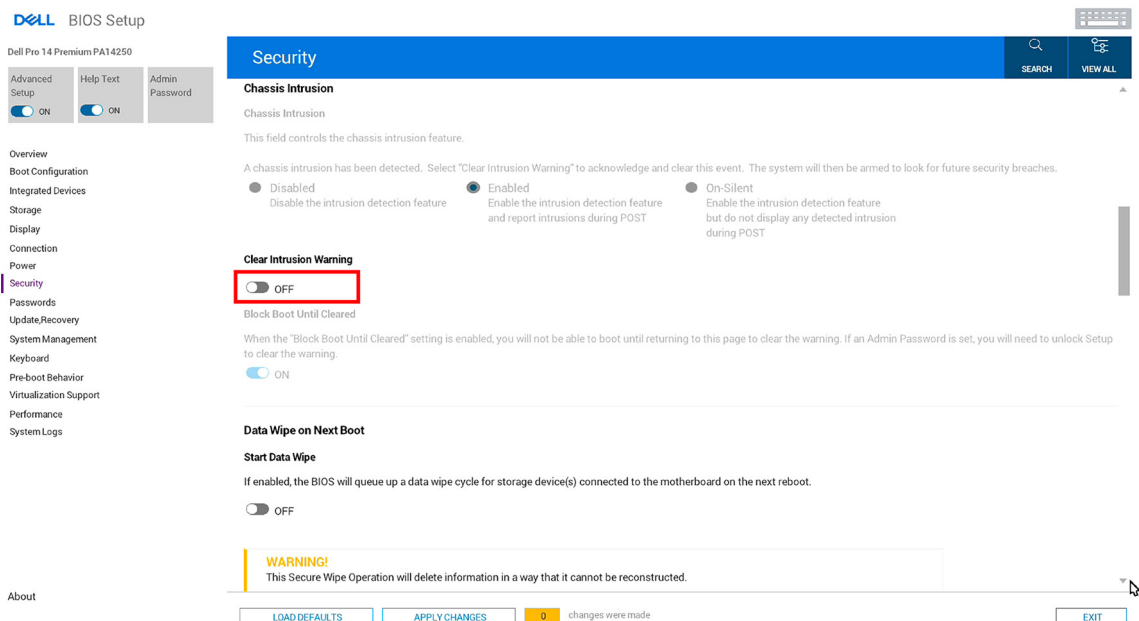
When **Block Boot Until Cleared** is switch to **OFF**, you can choose either **Continue** to proceed with the normal computer boot-up or **BIOS-Setup** to clear the alert.



Obrázok 80. BIOS-Setup

POZNÁMKA: 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.



Obrázok 81. Clear Intrusion Warning

Riešenie problémov

Manipulácia s nafúknutými nabíjateľnými lítiovo-iónovými batériami

Dell, ako väčšina ostatných výrobcov, používa vo svojich notebookoch lítiovo-iónové batérie. Jedným z typov takýchto batérií je nabíjateľná lítiovo-iónová batéria. Nabíjateľné lítiovo-iónové batérie sú čoraz populárnejšie a v posledných rokoch sa stali štandardným typom batérií používaných v elektronike. Dôvodom je záujem zákazníkov o tenké batérie s dlhou výdržou (využívané predovšetkým v novších mimoriadne tenkých notebookoch). Technológia, ktorú využívajú nabíjateľné lítiovo-iónové batérie, má však aj jeden nedostatok: články batérií sa môžu z rôznych dôvodov nafúknuť.

Takáto nafúknutá batéria potom môže negatívne ovplyvniť výkon notebooku. Preto je dôležité zabrániť prípadným poškodeniam vonkajšej časti zariadenia alebo jeho vnútorných súčastí, ktoré by ho mohli znefunkčniť. Ak sa batéria nafúkne, prestaňte notebook používať a odpojte napájací adaptér, aby sa batéria celkom vybila.

Nafúknuté batérie by sa nemali používať, ale sa musia nahradiť a riadne zlikvidovať. Ak sa vám v notebooku nafúkla batéria, odporúčame vám kontaktovať oddelenie podpory firmy Dell, kde vám poskytnú informácie o možnostiach výmeny takejto batérie v rámci zmluvných podmienok produktovej záruky alebo servisnej zmluvy, vrátane možnosti výmeny batérie autorizovaným servisným technikom firmy Dell.

Pokyny, ako manipulovať s nabíjateľnými lítiovo-iónovými batériami a vymieňať ich:

- S nabíjateľnými lítiovo-iónovými batériami manipulujte opatrne.
- Batériu pred vybratím z notebooku vybite. Vybiť ju môžete tak, že budete na počítači bežne pracovať, no odpojíte od neho napájací adaptér, aby bol napájaný z batérie. Batéria je úplne vybitá, keď sa počítač už po stlačení tlačidla napájania nezapne.
- Batériu nijako nedeformujte, nehádzte na zem, nepoškodzuje ani neprepichujte.
- Batériu nevystavujte vysokým teplotám a nerozoberajte články, z ktorých pozostáva.
- Na povrch batérie netlačte.
- Batériu neohýbajte.
- Batériu sa zo zariadenia nesnažte vypáčiť žiadnymi nástrojmi.
- Ak sa batéria nafúkne a zostane v zariadení zaseknutá, nepokúšajte sa ju z neho vybrať, pretože prepichnutie, ohnutie alebo zdeformovanie lítiovo-iónovej batérie môže byť nebezpečné.
- Nepokúšajte sa znova namontovať poškodenú alebo nafúknutú batériu do notebooku.
- Nafúknuté batérie, na ktoré sa vzťahuje záruka, je potrebné vrátiť do spoločnosti Dell v schválenom prepravnom kontajneri (poskytnutom spoločnosťou Dell) – cieľom je zabezpečiť súlad s prepravnými smernicami. Nafúknuté batérie, na ktoré sa záruka nevzťahuje, je potrebné zlikvidovať v schválenom recyklačnom centre. Pomoc a pokyny, ako postupovať ďalej, získate na [webovej lokalite podpory firmy Dell](#).
- Používanie nekompatibilnej batérie alebo batérie od inej firmy ako Dell môže zvýšiť nebezpečenstvo požiaru alebo výbuchu. Vymeňte batériu len za kompatibilnú batériu zakúpenú od spoločnosti Dell, ktorá je určená pre počítač Dell. Vo svojom počítači nepoužívajte batérie z iných počítačov. Vždy nakupujte iba originálne batérie z [webovej lokality firmy Dell](#) alebo iným spôsobom, ktorý umožňuje priamy nákup od firmy Dell.

Nafúknutie nabíjateľných lítiovo-iónových batérií môže mať viacero príčin, ako napríklad vysoký vek alebo počet cyklov nabitia a vybitia či vystavenie vysokej teplote. Viac informácií o možnostiach, ako zvýšiť výdrž a životnosť batérie v notebooku a minimalizovať riziko vzniku tohto problému, nájdete v databáze poznatkov na [webovej lokalite podpory firmy Dell](#), keď do vyhľadávacieho poľa zadáte „batéria notebooku Dell“.

Diagnostickeý nástroj Dell SupportAssist Pre-boot System Performance Check

O tejto úlohe

Diagnostika SupportAssist, známa tiež ako diagnostika systému, slúži na úplnú kontrolu hardvéru. Diagnostický nástroj Dell SupportAssist Pre-boot System Performance Check je integrovaný v systéme BIOS a spúšťa ho samotný systém BIOS. Vstavaná diagnostika systému poskytuje možnosti pre konkrétne zariadenia alebo skupiny zariadení, aby ste mohli:

- spustiť testy automaticky alebo v interaktívnom režime,
 - zopakovať testy,
 - zobrazíť alebo uložiť výsledky testov,
 - Spustíte podrobné testy a pridajte ďalšie možnosti a získajte podrobnosti o zariadeniach, ktoré zlyhajú.
 - Zobrazte hlásenia o stave, ktoré vás informujú, ak testy prebehli úspešne,
 - zobrazíť chybové hlásenia, ktoré vás informujú, ak sa počas testov objavili nejaké problémy.
- POZNÁMKA:** Niektoré testy vybraných zariadení vyžadujú aktívnu participáciu používateľa. Preto je dôležité, aby ste počas diagnostických testov boli pri počítači.

Viac informácií nájdete v článku databázy poznatkov s číslom [000181163](#).

Spustenie nástroja SupportAssist Pre-Boot System Performance Check

Postup

1. Zapnite počítač.
2. Počas spúšťania systému počítača stlačte kláves F12.
3. Na obrazovke ponuky zavádzania vyberte možnosť **Diagnostika**.
Spustí sa diagnostický rýchly test.
POZNÁMKA: Ďalšie informácie o spustení nástroja SupportAssist Pre-Boot System Performance Check na konkrétnom zariadení nájdete na [webovej stránke technickej podpory spoločnosti Dell](#).
4. V prípade problémov sa zobrazia chybové kódy.
Poznačte si chybový kód a overovacie číslo a obráťte sa na firmu Dell.

Integrovaný automatický test (BIST)

(Integrovaný autodiagnostický test) M-BIST

M-BIST je vstavaný autodiagnostický testovací nástroj systémovej dosky, ktorý zvyšuje presnosť diagnostiky zlyhaní radičov integrovaných v systémovej doske.

- POZNÁMKA:** M-BIST možno spustiť manuálne pred testom Power On Self Test (POST).

Ako spustiť nástroj M-BIST

- POZNÁMKA:** Pred spustením nástroja M-BIST skontrolujte, či je počítač vypnutý.

1. M-BIST sa spúšťa stlačením klávesu **M** na klávesnici a tlačidla napájania.
2. Indikátor LED batérie využíva na signalizáciu dva stavy:
 - Nesvieti: Nebola zistená žiadna chyba.
 - Oranžová a biela: Zistil sa problém so systémovou doskou.
3. Ak na systémovej doske nastala porucha, indikátor LED stavu batérie bude 30 sekúnd blikať vzorom niektorého z týchto chybových kódov:

Tabuľka50. Chybové kódy diód LED

Vzor blikania		Možný problém
Žltá	Biela	
2	1	Zlyhanie procesora
2	8	Zlyhanie obvodu napájania LCD
1	1	Zlyhanie detekcie modulu TPM

Tabuľka50. Chybové kódy diód LED (pokračovanie)

Vzor blikania		Možný problém
Žltá	Biela	
2	4	Chyba pamäte/RAM

4. Ak na systémovej doske nie je porucha, obrazovka LCD prejde za 30 sekúnd cyklom jednofarebných zobrazení (opísaných v časti LCD-BIST) a potom zhasne.

Vstavaný logistický test (L-BIST)

L-BIST rozširuje diagnostiku pomocou chybových kódov signalizovaných diódou LED a spúšťa sa automaticky počas testu POST. L-BIST kontroluje funkčnosť napájacieho obvodu panela LCD. Ak panel LCD nie je napájaný (to znamená, ak test L-BIST zlyhá), stavová dióda LED batérie buď zabliká chybový kód [2,8], alebo chybový kód [2,7].

POZNÁMKA: Ak test L-BIST zlyhá, znamená to, že funkcia LCD-BIST nefunguje, pretože panel LCD nie je napájaný.

Ako spustiť test L-BIST

1. Zapnite počítač.
2. Ak sa počítač nespustí normálne, pozrite sa na indikátor LED stavu batérie.
 - Ak stavová dióda LED bliká chybový kód [2,7], video kábel je možno nesprávne pripojený.
 - Ak indikátor LED stavu batérie blikaním signalizuje chybový kód [2,8], nastala porucha v napájacom rozvode systémovej dosky a panel LCD nie je napájaný.
3. Pre prípady zobrazenia chybového kódu [2,7] skontrolujte, či je správne zapojený video kábel.
4. Pre prípady zobrazenia chybového kódu [2,8] vymeňte systémovú dosku.

Integrovaný autodiagnostický test (LCD-BIST) obrazovky LCD

Notebooky Dell sú vybavené integrovaným diagnostickým nástrojom, ktorý slúži na odhaľovanie abnormálneho správania obrazovky a určovanie jeho príčiny, teda či ide o problém súvisiaci priamo s panelom LCD (obrazovkou) notebooku Dell alebo o problém s grafickým procesorom (GPU) a nastaveniami počítača.

Ak si všimnete nejaké abnormálne správanie obrazovky počítača, ako je napríklad blikanie, skreslenie, nedostatočne ostrý, nejasný či rozmazaný obraz, zobrazovanie vodorovných alebo zvislých čiar, blednutie farieb, vždy je dobré najskôr spustiť test LCD-BIST, aby ste zistili, či ide o problém s obrazovkou (LCD) alebo o niečo iné.

Ako spustiť test LCD-BIST

1. Vypnite počítač.
2. Od počítača odpojte všetky periférne zariadenia. K počítaču pripojte len napájací adaptér (nabíjačku).
3. Utrite obrazovku LCD, aby nebol na povrchu žiadny prach.
4. Stlačte a podržte kláves **D** a stlačte tlačidlo napájania na vstup do režimu testu LCD-BIST. Nadalej držte stlačený kláves **D**, kým sa nezačne spúšťať operačný systém počítača.
5. Na obrazovke sa zobrazí viacero jednofarebných oblastí a farba celej obrazovky sa dvakrát zmení na bielu, čiernu, červenú, zelenú a modrú.
6. Potom sa zobrazí čierna, biela a červená.
7. Pozorne skontrolujte, či sa na obrazovke nenachádzajú abnormality (akékoľvek čiary, nejasný obraz, skreslenie)
8. Po zobrazení poslednej jednofarebnej plochy (červená) sa počítač vypne.

POZNÁMKA: Diagnostický nástroj Dell SupportAssist Preboot po spustení najprv inicializuje test LCD-BIST a čaká na zásah používateľa, ktorým sa má overiť funkčnosť obrazovky LCD.

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.

Tabuľka 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.
4,4	LCD Power Rail Failure	Replace system board

Obnovenie operačného systému

Ak váš počítač nedokáže spustiť operačný systém ani po niekoľkých pokusoch, automaticky sa spustí nástroj Dell SupportAssist OS Recovery.

Dell SupportAssist OS Recovery je samostatný nástroj, ktorý inštalujeme do počítačov značky Dell s operačným systémom Windows. Tento nástroj pozostáva z viacerých ďalších nástrojov na diagnostiku a riešenie problémov, ktoré sa v počítači môžu vyskytnúť pred spustením operačného systému. Pomocou tohto nástroja môžete diagnostikovať problémy s hardvérom, opraviť počítač, zálohovať si súbory a vrátiť počítač do stavu, v akom ste ho dostali z výroby.

Nástroj Dell SupportAssist OS Recovery si môžete tiež stiahnuť z webovej lokality podpory firmy Dell a použiť ho na opravu svojho počítača, keď nebude možné kvôli problémom so softvérom alebo hardvérom spustiť hlavný operačný systém.

Viac informácií o nástroji Dell SupportAssist OS Recovery vám poskytne *Používateľská príručka nástroja Dell SupportAssist OS Recovery* dostupná na [webovej lokalite podpory firmy Dell v časti s nástrojmi na servis zariadení](#). Kliknite na položku **SupportAssist** a potom na položku **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.

Zálohovacie médiá a možnosti obnovenia

Odporúča sa, aby ste si vytvorili jednotku na obnovenie systému určenú na opravu problémov, ktoré sa môžu v systéme Windows vyskytnúť. Spoločnosť Dell ponúka viacero možností obnovenia operačného systému Windows vo vašom počítači Dell. Viac informácií nájdete v časti [Zálohovacie médiá a možnosti obnovy systému Windows od firmy Dell](#).

Cyklus sieťového napájania

O tejto úlohe

Ak váš počítač nemá prístup na internet z dôvodu problémov so sieťovým pripojením, resetujte sieťové zariadenia vykonaním nasledujúcich krokov:

Postup

1. Vypnite počítač.
2. Vypnite modem.
 **POZNÁMKA:** Niektorí poskytovatelia internetových služieb (ISP) zabezpečujú modem a kombinované zariadenie smerovača.
3. Vypnite bezdrôtový smerovač.
4. Počkajte 30 sekúnd.
5. Zapnite bezdrôtový smerovač.
6. Zapnite modem.
7. Počítač zapnite.

Drain flea power (perform hard reset)

O tejto úlohe

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 a 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:

Postup

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.



POZNÁMKA: 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.

Získanie pomoci a kontaktovanie firmy Dell

Zdroje svojpomoci

Ďalšie informácie a pomoc k výrobkom a službám Dell môžete získať z týchto zdrojov svojpomoci:

Tabuľka 52. Zdroje svojpomoci

Zdroje svojpomoci	Umiestnenie zdrojov informácií
Informácie o výrobkoch a službách Dell	Webová lokalita firmy Dell
Tipy	
Kontaktovať oddelenie podpory	Do vyhľadávacieho poľa systému Windows zadajte Contact Support a stlačte kláves Enter .
Online pomocník pre operačný systém	Webová lokalita podpory pre Windows Webová lokalita podpory pre systém Linux
Získajte prístup k najlepším riešeniam, diagnostike, ovládačom a súborom na stiahnutie a zistite o svojom počítači viac prostredníctvom videí, návodov a dokumentov.	Váš počítač Dell má svoj jedinečný identifikátor – servisný tag alebo kód expresného servisu. Ak si chcete pozrieť relevantné zdroje podpory pre svoj počítač Dell, navštívte webovú lokalitu podpory firmy Dell a zadajte svoj servisný tag alebo kód expresného servisu. Viac informácií o tom, kde nájdete servisný tag svojho počítača, nájdete tu: Umiestnenie servisného tagu na počítači .
Články z databázy poznatkov spoločnosti Dell	1. Navštívte webovú lokalitu podpory firmy Dell. 2. Na paneli ponuky v hornej časti stránky Podpora vyberte položku Podpora > Knižnica podpory. 3. Do vyhľadávacieho poľa na webovej stránke knižnice podpory zadajte kľúčové slovo, tému alebo číslo modelu a potom kliknite alebo ťuknite na ikonu vyhľadávania, aby sa zobrazili súvisiace články.

Ako kontaktovať spoločnosť Dell

Kontakt na firmu Dell v súvislosti s predajom, technickou podporou alebo starostlivosťou o zákazníkov nájdete na [webovej lokalite podpory firmy Dell](#).

 **POZNÁMKA:** Dostupnosť služieb sa môže líšiť v závislosti od krajiny alebo regiónu a produktu.

 **POZNÁMKA:** Ak nemáte aktívne pripojenie na internet, kontaktné informácie nájdete na faktúre, dodacom liste, účtenke alebo v produktovom katalógu firmy Dell.