Latitude 7030 Rugged Extreme Tablet

Owner's Manual

Regulatory Model: T18G
Regulatory Type: T18G001
June 2024
Rev. A02

Notes, cautions, and warnings

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

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

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

Contents

1

Views of Latitude 7030 Rugged Extreme Tablet

Right

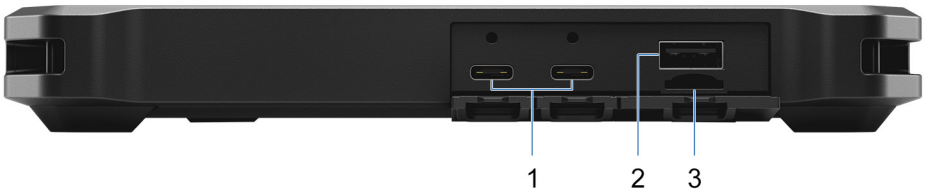

Figure 1. Right view

1. **With internal battery - Two Thunderbolt 4.0 ports with Power Delivery and DisplayPort**

   Supports USB4, DisplayPort 1.4, Thunderbolt 4 and also enables you to connect to an external display using a display adapter. Provides data transfer rates of up to 40 Gbps for USB4 and Thunderbolt 4. Supports Power Delivery that enables two-way power supply between devices. Provides up to a 5 V power output that enables faster charging.

   NOTE: 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.

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

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

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

   With hot-swappable battery - Two USB 3.2 Gen 2 Type-C ports with DisplayPort Alt Mode/USB4/Power Delivery

   Connect devices such as external storage devices and printers. Supports Power Delivery that enables two-way power supply between devices. Provides up to a 5 V power output that enables faster charging.

   Provides data transfer speeds up to 10 Gbps.

   NOTE: Connected USB devices will not charge when the computer is turned off or in a sleep state. Turn on the computer to charge the connected USB devices.

2. **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.

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

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

3. **microSD-card slot**

   Insert a microSD card to expand the computer's storage capacity.

Left

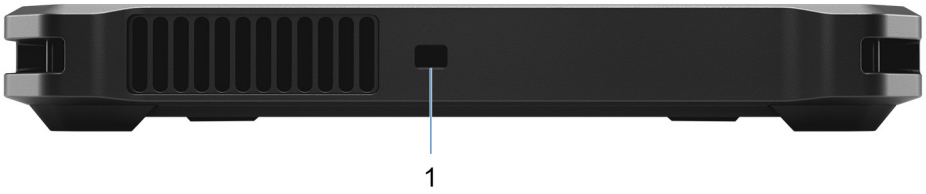

Figure 2. Left view

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

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

Top

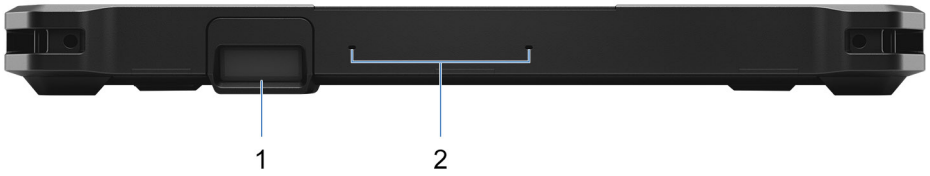

Figure 3. Top view

1. **Optional I/O bay**

   Choose from: RJ45/USB 3.2 Gen 1 port/universal audio jack/1D-2D barcode scanner/blank

   - With RJ45 - Connect an Ethernet (RJ45) cable from a router or a broadband modem for network or Internet access, with a transfer rate of 10/100/1000 Mbps.
   - With USB 3.2 Gen 1 port - Connect devices such as external storage devices and printers. Provides data transfer speeds up to 5 Gbps.
   - With universal audio jack - Connect headphones or a headset (headphone and microphone combo).
   - With 1D-2D barcode scanner - Record and translate barcodes from the image you recognize into alphanumeric digits.

2. **Microphones**

   Provide digital sound input for audio recording, voice calls, and so on.

Display

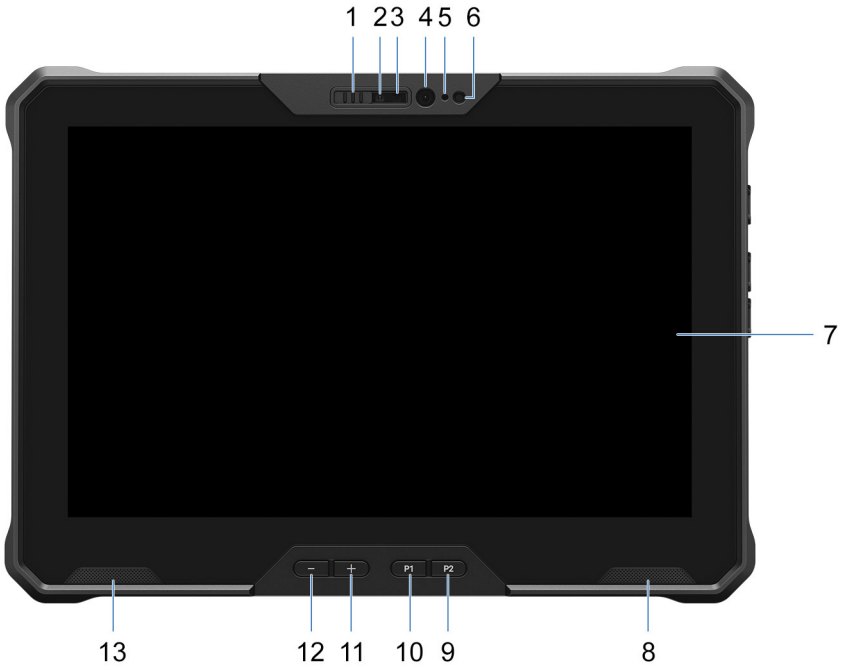

Figure 4. Display view

1. **Privacy shutter**

   Slide the privacy shutter to cover the camera lens and protect your privacy when the camera is not in use.

2. **RGB camera**

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

3. **Infrared camera**

   Enhances security when paired with Windows Hello face authentication.

4. **Infrared emitter**

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

5. **Camera-status light**

   Turns on when the camera is in use.

6. **Ambient-light sensor**

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

7. **Display**

   Provides visual output.

8. **Speaker**

   Provides audio output.

9. **P2—User programmable button 2**

   Supports two types of touch: short press, and long press. The button can be configured to perform up to two different tasks depending on the type of touch used.

10. **P1—User programmable button 1**

    Supports two types of touch: short press, and long press. The button can be configured to perform up to two different tasks depending on the type of touch used.

NOTE: You can configure the P1/P2 buttons using Rugged Control Center. For more information about Rugged Control Center, refer Rugged Control Center User's Guide and Quick Start Guide at Dell.com/support/Rugged-Control-Center.

11. **Increase-volume button**

    Press to increase the volume.

12. **Decrease-volume button**

    Press to decrease the volume.

13. **Speaker**

    Provides audio output.

Bottom

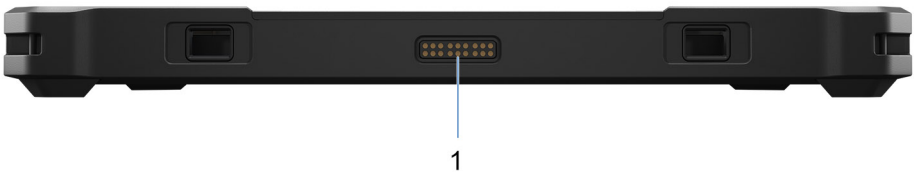

Figure 5. Bottom view

1. **Docking connector**

   Enables docking to the tablet.

   NOTE: Used for dock a docking station or a rugged keyboard.

Back

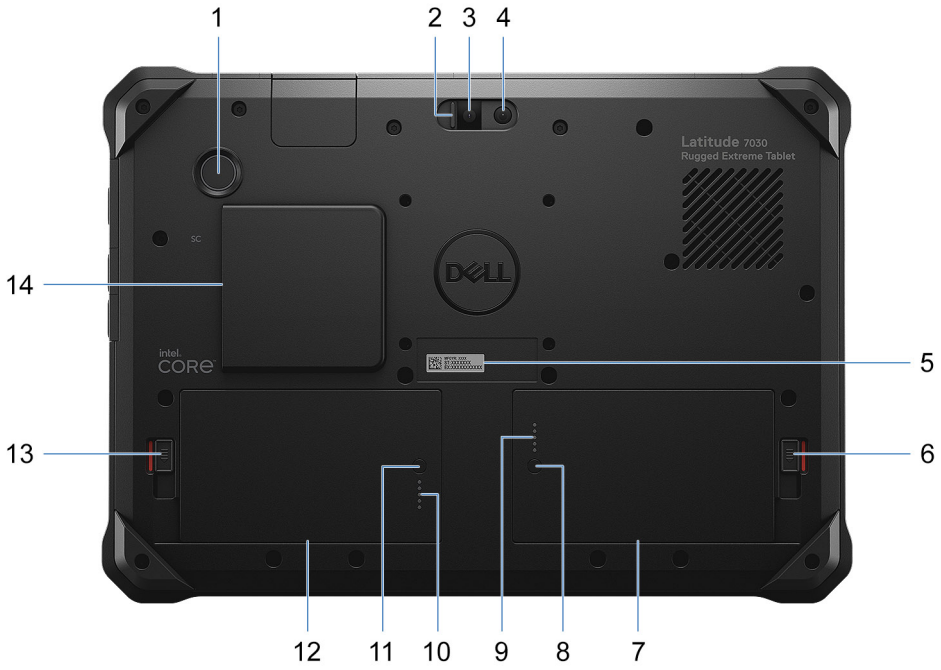

Figure 6. Back view

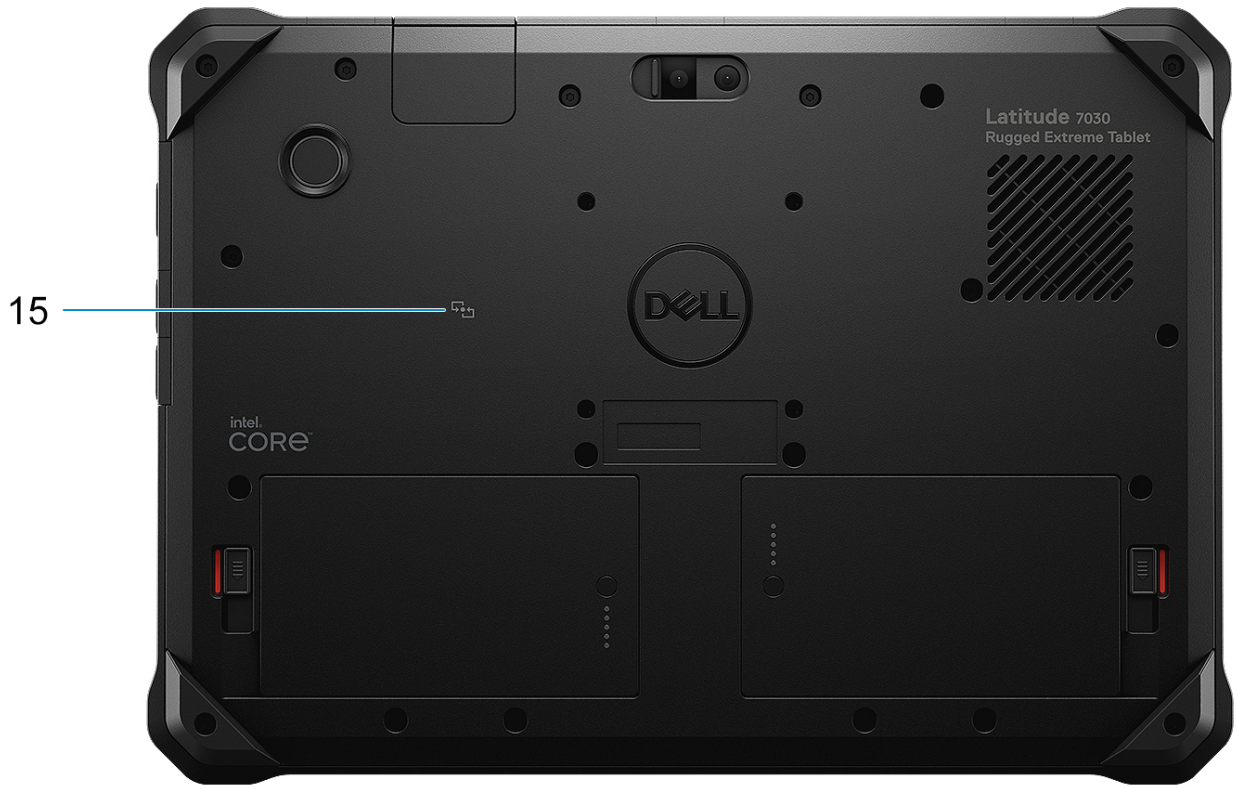

Figure 7. Back view

1. **Power button with optional fingerprint reader**

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

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

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

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

   NOTE: Press and hold the power button, and then press the volume down button to unlock. This hot key performs the same function as Ctrl+Alt+Del.

2. **Camera-cover latch**

   The latch covers your tablet camera lens. Slide the latch to the right-side of your tablet to cover the camera lens.

3. **Camera**

   Make video calls, capture photos, or record videos.

4. **Camera flash light**

   Turns on when the camera flash light option is enabled.

5. **Service Tag**

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

6. **Battery-release latch**

Lock or unlock the battery in the battery bay. Slide the latch to the unlock position, to release the battery.

7. **Battery**

   Supplies power to the tablet. It enables the tablet to work without connecting to an electrical outlet for a limited time.

8. **Battery-charge status button**

   Press to check the charge remaining in the battery.

9. **Battery-status light**

   Indicates the battery-charge status.

   Solid green—Battery is charging.

   Off—Battery is fully charged.

10. **Battery-status light**

    Indicates the battery-charge status.

    Solid green—Battery is charging.

    Off—Battery is fully charged.

11. **Battery-charge status button**

    Press to check the charge remaining in the battery.

12. **Battery**

    Supplies power to the tablet. It enables the tablet to work without connecting to an electrical outlet for a limited time.

13. **Battery-release latch**

    Lock or unlock the battery in the battery bay. Slide the latch to the unlock position, to release the battery.

14. **Smart-card reader slot (optional)**

    Reads information from a smart card with a built-in-chip.

    NOTE: Ensure that the smart card does not exceed the edge of the back cover while inserting in to the smart-card cover.

15. **NFC module (optional)**

    Enables secure transactions, exchange digital content, and connect electronic devices with a touch.

Service Tag

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

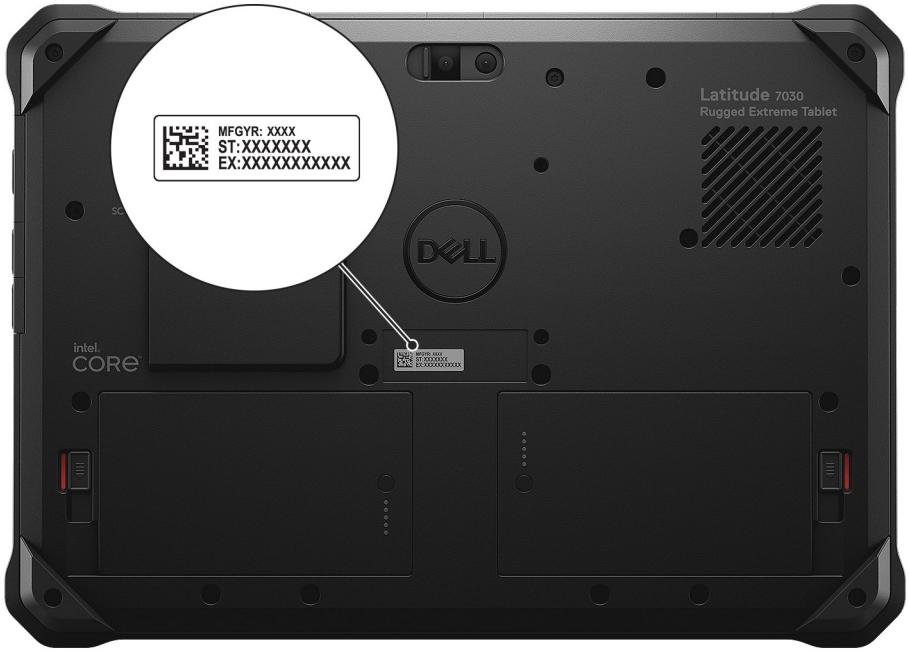

Figure 8. Service Tag location

Battery charge and status light

The following table lists the battery charge and status light behavior of your Latitude 7030 Rugged Extreme Tablet.

Table 1. Battery charge and status light behavior

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

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

2

Set up your Latitude 7030 Rugged Extreme Tablet

About this task

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

Steps

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

Figure 9. Setting up Latitude 7030 Rugged Extreme Tablet

Figure 10. Setting up Latitude 7030 Rugged Extreme Tablet

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

2. Finish the operating system setup.

   For Windows:

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

   - Connect to a network for Windows updates.

     NOTE: If connecting to a secured wireless network, enter the password for the wireless network access when prompted.

   - If connected to the Internet, sign-in with or create a Microsoft account. If not connected to the Internet, create an offline account.
   - On the **Support and Protection** screen, enter your contact details.

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

Table 2. Locate Dell apps

Resources	Description
	Dell Product Registration Register your computer with Dell.
	Dell Help & Support Access help and support for your computer.
	SupportAssist SupportAssist is the smart technology that keeps your computer running at its best by optimizing settings, detecting issues, removing viruses and notifies when you must make computer updates. 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 *SupportAssist for Business PCs manual* at SupportAssist for Business PCs.

Table 2. Locate Dell apps (continued)

Resources	Description
	NOTE: In SupportAssist, click the warranty expiry date to renew or upgrade your warranty.
	**Dell Update** Updates your computer with critical fixes and latest device drivers as they become available. For more information about using Dell 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.

3

Specifications of Latitude 7030 Rugged Extreme Tablet

Dimensions and weight

The following table lists the height, width, depth, and weight of your Latitude 7030 Rugged Extreme Tablet.

Table 3. Dimensions and weight

Description	Values
Height:	
Front height	25.40 mm (1 in.)
Rear height	25.40 mm (1 in.)
Width	262.50 mm (10.33 in.)
Depth	188 mm (7.40 in.)
Weight **NOTE:** The weight of your tablet depends on the configuration ordered and manufacturing variability.	1.01 kg (2.24 lb)

Processor

The following table lists the details of the processors that are supported in your Latitude 7030 Rugged Extreme Tablet.

Table 4. Processor

Description	Option one	Option two	Option three
Processor type	12th Generation Intel Core i3-1210U	12th Generation Intel Core i5-1240U	12th Generation Intel Core i7-1260U
Processor wattage	9 W	9 W	9 W
Processor core count	6	10	10
Processor thread count	8	12	12
Processor speed	Up to 4.40 GHz	Up to 4.40 GHz	Up to 4.70 GHz
Processor cache	10 MB	12 MB	12 MB
Integrated graphics	Intel UHD Graphics	Intel Iris Xe Graphics	Intel Iris Xe Graphics

Chipset

The following table lists the details of the chipset that is supported in your Latitude 7030 Rugged Extreme Tablet.

Table 5. Chipset

Description	Values
Chipset	Intel ADL-M
Processor	12th Generation Intel Core i3/i5/i7
DRAM bus width	64-bit
Flash EPROM	32 MB/48 MB
PCIe bus	• Up to Gen4 (from processor for solid-state drive only) • Up to Gen3 (from PCH only)

Operating system

Your Latitude 7030 Rugged Extreme Tablet supports the following operating systems:

- Windows 11 2022H2 Pro
- Windows 11 2021H2 Pro
- Windows 10 2022H2 Pro

Memory

The following table lists the memory specifications of your Latitude 7030 Rugged Extreme Tablet.

Table 6. Memory specifications

Description	Values
Memory slots	On-board memory
Memory type	Dual-channel LPDDR5/LPDDR5x (Non-ECC)
Memory speed	5200 MT/s
Maximum memory configuration	32 GB
Minimum memory configuration	8 GB
Memory configurations supported	• 8 GB, 2 x 4 GB, LPDDR5, 5200 MT/s • 16 GB, 2 x 8 GB, LPDDR5x, 5200 MT/s • 32 GB, 2 x 16 GB, LPDDR5x, 5200 MT/s

External ports

The following table lists the external ports of your Latitude 7030 Rugged Extreme Tablet.

Table 7. External ports

Description	Values
Network port	Ethernet connection available through optional expansion module or dock
USB ports	• With internal battery - Two Thunderbolt 4 ports with DisplayPort Alt Mode/USB4/Power Delivery • With hot-swappable battery - Two USB 3.2 Gen 2 Type-C ports with DisplayPort Alt Mode/USB4/Power Delivery • USB 3.2 Gen 1 port with PowerShare
Audio port	One optional universal audio jack
Video port	Supported through a dock or directly through USB Type-C ports
Media-card reader	One microSD-card slot
Power-adapter port	65W/90W adapter, USB Type-C
SIM slot	One microSIM-card slot
Security-cable slot	One wedge-shaped lock slot
Optional ports	One optional I/O bay (Choose from: RJ45/USB 3.2 Gen 1 port/universal audio jack/1D-2D barcode scanner/blank)

Internal slots

The following table lists the internal slots of your Latitude 7030 Rugged Extreme Tablet.

Table 8. Internal slots

Description	Values
M.2	• One M.2 2230 slot for solid-state drive • One M.2 2230 slot for Wi-Fi and Bluetooth card • One M.2 3042 slot for WWAN card **NOTE:** To learn more about the features of different types of M.2 cards, search in the Knowledge Base Resource at Dell Support Site.

Ethernet (optional)

The following table lists the wired Ethernet Local Area Network (LAN) specifications of your Latitude 7030 Rugged Extreme Tablet.

Table 9. Ethernet specifications

Description	Values
Model number	Intel Ethernet i219LM

Table 9. Ethernet specifications (continued)

Description	Values
Transfer rate	10/100/1000 Mbps

Wireless module

The following table lists the Wireless Local Area Network (WLAN) modules that are supported on your Latitude 7030 Rugged Extreme Tablet.

Table 10. Wireless module specifications

Description	Option one	Option two
Model number	Qualcomm WCN6856-DBS	Intel AX211
Transfer rate	Up to 3571 Mbps	Up to 2400 Mbps
Frequency bands supported	2.4 GHz/5 GHz/6 GHz	2.4 GHz/5 GHz/6 GHz
Wireless standards	• WiFi 802.11a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6E (WiFi 802.11ax)	• WiFi 802.11a/b/g • Wi-Fi 4 (WiFi 802.11n) • Wi-Fi 5 (WiFi 802.11ac) • Wi-Fi 6E (WiFi 802.11ax)
Encryption	• 64-bit/128-bit WEP • AES-CCMP • TKIP	• 64-bit/128-bit WEP • AES-CCMP • TKIP
Bluetooth wireless card	Bluetooth 5.3 wireless card	Bluetooth 5.3 wireless card
	NOTE: The version of the Bluetooth wireless card may vary depending on the operating system that is installed on your tablet.	

Mobile broadband

The following table lists the Mobile broadband supported on your Latitude 7030 Rugged Extreme Tablet.

Table 11. Mobile broadband specifications

Description	Option one	Option two
Model number	Qualcomm Snapdragon X12 Global LTE-Advanced (DW5825e), eSIM	Dell Global 5G (DW5931e), eSIM
Form factor	M.2 3042 Key-B	M.2 3052 Key-B
Host interface	USB 3.0/2.0	PCIe Gen3
Network standard	LTE FDD/TDD, WCDMA/HSPA+, GPS/GLONASS/Beidou/Galileo	NR FR1(Sub6) FDD/TDD, LTE FDD/TDD, WCDMA/HSPA+, GPS/GLONASS/Galileo/BDS/QZSS
Transfer data rate	• Up to 600 Mbps DL (CAT12) • Up 150 Mbps UL	• SA: DL 4.67 Gbps/UL 1.25 Gbps • NSA: DL 3.74 Gbps/UL 700 Mbps • LTE: DL 1.6 Gbps (CAT19)/UL 150 Mbps • UMTS: DL 384 kbps / UL 384 kbps • DL DC-HSPA+: 42 Mbps (CAT24)/UL 11.5 Mbps (CAT7)

Table 11. Mobile broadband specifications (continued)

Description	Option one	Option two
Operating Frequency Bands	• LTE (B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B38, B39, B40, B41, B42, B43, B48, B66, B71) • HSPA+ (1,2,4,5,6,8,19)	• NR (n1, n2, n3, n5, n7, n8, n20, n25, n28, n30, n38, n40, n41, n48, n66, n71, n77, n78, n79) • LTE (B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46, B48, B66, B71*) • WCDMA/HSPA+ (1, 2, 4, 5, 8) * Modem hardware supports, but currently disabled.
Power supply	DC 3.135 V to 4.4 V, typical 3.3 V	DC 3.135 V to 4.4 V, typical 3.3 V
SIM card	Supported through external SIM slot	Supported through external SIM slot
eSIM with Dual SIM (DSSA)	Supported (the availability of eSIM functionality embedded on the module is dependent on the region and specific carrier requirements)	Supported (the availability of eSIM functionality embedded on the module is dependent on the region and specific carrier requirements)
Antenna Diversity	Supported	Supported
Radio On/Off	Supported	Supported
Wake On Wireless	Supported	Supported
Temperature	• Normal operating temperature: -10°C to +55°C • Extended Operating temperature: -30°C to +75°C	• Normal operating temperature: -10°C to +55°C • Extended operating temperature: -30°C to +75°C • Storage temperature: -40°C to +85°C
Antenna connector	• WWAN Main Antenna x 1 • WWAN Diversity Antenna x 1	• WWAN Antenna x 4 • Supports 4x4 MIMO

GPS module

The following table lists the u-blox NEO-M9N module that is supported on your Latitude 7030 Rugged Extreme Tablet.

Table 12. u-blox NEO-M9N module specifications

u-blox NEO-M9N module	
Interface	UART (default), SPI, I2C, USB
Performance	
Receiver type	92-channel u-blox M9 engine GPS L1 C/A, QZSS L1 C/A/S, GLONASS L10F, BeiDou B1I, Galileo E1 B/C SBAS L1 C/A: WAAS, EGNOS, MSAS, GAGAN
Navigation update rate (maximum)	25 Hz (four concurrent GNSS modes)
Position accuracy	2.0 m CEP (four concurrent GNSS modes)
Supported protocol	• UBX • NMEA 4.10 (default), 4.0, 2.3, and 2.1 • RTCM 3.3
Security features	• Anti-jamming

Table 12. u-blox NEO-M9N module specifications (continued)

u-blox NEO-M9N module	
	• Anti-spoofing • Configuration lockdown • Message integrity • Secure boot • JTAG debug port (locked by default)
Baud rate	38400
Absolute maximum ratings	
Power supply voltage	-0.5 V (minimum) 3.6 V (maximum)
Storage temperature	-40°C to 85°C (-40°F to 185°F)
Operating conditions	
Power supply voltage	2.7 V (minimum) 3.6 V (maximum)
Operating temperature	-40°C to 85°C (-40°F to 185°F)

Audio

The following table lists the audio specifications of your Latitude 7030 Rugged Extreme Tablet.

Table 13. Audio specifications

Description		Values
Audio controller		Realtek ALC3254
Stereo conversion		Supported
Internal audio interface		High-definition audio interface
External audio interface		Universal audio jack
Number of speakers		2
Internal-speaker amplifier		Supported
External volume controls		Supported
Speaker output:		
	Average speaker output	2 W
	Peak speaker output	2.5 W
Subwoofer output		Supported
Microphone		Dual-array

Storage

This section lists the storage options on your Latitude 7030 Rugged Extreme Tablet.

Your Latitude 7030 Rugged Extreme Tablet supports the following storage configuration:

- One M.2 2230 solid-state drive

Table 14. Storage specifications

Storage type	Interface type	Capacity
M.2 2230 solid-state drive	PCIe NVMe Gen4 x4	256 GB/512 GB/1 TB
M.2 2230 solid-state drive, Opal 2.0 Self-Encrypting Drive	PCIe NVMe Gen4 x4	256 GB/512 GB
M.2 2230 solid-state drive, QLC	PCIe NVMe Gen4 x4	2 TB

Media-card reader

The following table lists the media cards that are supported in your Latitude 7030 Rugged Extreme Tablet.

Table 15. Media-card reader specifications

Description	Values
Media-card type	One micro-SD card
Media-cards supported	• Micro Secure Digital (mSD) • Micro Secure Digital High Capacity (mSDHC) • Micro Secure Digital Extended Capacity (mSDXC) • USH-I • USH-II • Multi-Media
NOTE: The maximum capacity that is supported by the media-card reader varies depending on the standard of the media card that is installed on your computer.	

Camera

The following table lists the camera specifications of your Latitude 7030 Rugged Extreme Tablet.

Table 16. Front camera specifications

Description		Values
Number of cameras		Two
Camera type		5M RGB camera/VGA IR camera
Camera location		Front camera
Camera sensor type		CMOS sensor technology
Camera resolution:		
	Still image	2592 x 1944 megapixel
	Video	1920 x 1080 (FHD) at 30 fps
Infrared camera resolution:		

Table 16. Front camera specifications (continued)

Description		Values
	Still image	640 x 480 megapixel
	Video	640 x 480 (VGA) at 30 fps
Diagonal viewing angle:		
	Camera	92.0 degrees
	Infrared camera	77.3 degrees

Table 17. Rear camera specifications

Description		Values
Number of cameras		One
Camera type		11M RGB camera
Camera location		Rear camera
Camera sensor type		CMOS sensor technology
Camera resolution:		
	Still image	3976 x 2736 megapixel
	Video	1920 x 1080 (FHD) at 30 fps
Diagonal viewing angle:		
	Camera	97.0 degrees

Battery

The following table lists the battery specifications of your Latitude 7030 Rugged Extreme Tablet.

Table 18. Battery specifications

Description	Option one	Option two	Option three	Option four
Battery type	4-cell, 36 Wh, Polymer, ExpressCharge Capable, internal	4-cell, 36 Wh, Polymer, ExpressCharge Capable, Long life cycle, internal	2-cell, 18 Wh, Polymer, ExpressCharge Capable, hot-swappable	2-cell, 18 Wh, Polymer, ExpressCharge Capable, Long life cycle, hot-swappable
Battery voltage	8.96 VDC	8.96 VDC	8.96 VDC	8.96 VDC
Battery weight (maximum)	0.165 kg (0.36 lb)	0.165 kg (0.36 lb)	0.103 kg (0.22 lb)	0.103 kg (0.22 lb)
Battery dimensions:				
Height	11.61 mm (0.45 in.)	11.61 mm (0.45 in.)	12 mm (0.47 in.)	12.00 mm (0.47 in.)
Width	149 mm (5.86 in.)	149 mm (5.86 in.)	95.65 mm (3.76 in.)	95.65 mm (3.76 in.)
Depth	48.40 mm (1.90 in.)	48.40 mm (1.90 in.)	53.00 mm (2.08 in.)	53 mm (2.08 in.)
Temperature range:				
Operating	-26°C to 60°C (-14.8°F to 140°F)	-26°C to 60°C (-14.8°F to 140°F)	-26°C to 60°C (-14.8°F to 140°F)	-26°C to 60°C (-14.8°F to 140°F)

Table 18. Battery specifications (continued)

Description	Option one	Option two	Option three	Option four
Storage	-20°C to 65°C (-4°F to 149°F)	-20°C to 65°C (-4°F to 149°F)	-20°C to 65°C (-4°F to 149°F)	-20°C to 65°C (-4°F to 149°F)
Battery operating time	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions.
Battery charging time (approximate)	• 0°C~15°C — 4 hours (when the computer is off) • 16°C~45°C — 2 hours (when the computer is off) • 46°C~50°C — 3 hours (when the computer is off)	• 0°C~15°C — 4 hours (when the computer is off) • 16°C~45°C — 2 hours (when the computer is off) • 46°C~50°C — 3 hours (when the computer is off)	• 0°C~15°C — 4 hours (when the computer is off) • 16°C~45°C — 2 hours (when the computer is off) • 46°C~50°C — 3 hours (when the computer is off)	• 0°C~15°C — 4 hours (when the computer is off) • 16°C~45°C — 2 hours (when the computer is off) • 46°C~50°C — 3 hours (when the computer is off)
Coin-cell battery	CR2025	CR2025	CR2025	CR2025
User replaceable	No	No	Yes	Yes

CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.

CAUTION: Dell recommends that you charge the battery regularly for optimal power consumption. If your battery charge is completely depleted, connect the power adapter, turn on your tablet, and then restart your tablet to reduce the power consumption.

Power requirements (for computers shipped with 2-cell, 18 Wh battery, hot-swappable)

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

NOTE: The information in this section is applicable only to computers shipped with two units of the 2-cell, 18 Wh hot-swappable battery.

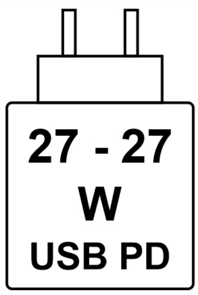

Figure 11. Pictogram for power charging requirements

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

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

Power requirements (for computers shipped with 4-cell, 36 Wh battery)

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

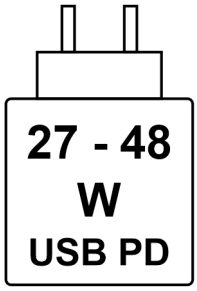

Figure 12. Pictogram for power charging requirements

The power that is delivered by the charger must be between a minimum of 27 Watts that is required by the radio equipment, and a maximum of 48 Watts in order to achieve the maximum charging speed.

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

Power adapter

The following table lists the power adapter specifications of your Latitude 7030 Rugged Extreme Tablet.

Table 19. Power adapter specifications

Description	Option one	Option two
Type	65W adapter USB Type-C	90W adapter USB Type-C
Power-adapter dimensions:		
Height	28.00 mm (1.10 in.)	22.00 mm (0.87 in.)
Width	51.00 mm (2.01 in.)	66.00 mm (2.60 in.)
Depth	112.00 mm (4.41 in.)	130.00 mm (5.12 in.)
Input voltage	100 VAC–240 VAC	100 VAC–240 VAC
Input frequency	50 Hz–60 Hz	50 Hz–60 Hz
Input current (maximum)	1.70 A	1.50 A
Output current (continuous)	• 20 V/3.25 A (Continuous) • 15 V/3 A (Continuous) • 9.0 V/3 A (Continuous) • 5.0 V/3 A (Continuous)	• 20 V/4.50 A (Continuous) • 15 V/3 A (Continuous) • 9.0 V/3 A (Continuous) • 5.0 V/3 A (Continuous)
Rated output voltage	• 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)

Table 19. Power adapter specifications (continued)

Description	Option one	Option two
Storage	-40°C to 70°C (-40°F to 158°F)	-40°C to 70°C (-40°F to 158°F)

CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.

Power adapter requirements (for computers shipped with 2-cell, 18 Wh battery, hot-swappable)

NOTE: The information in this section is applicable only to computers shipped with two units of the 2-cell, 18 Wh hot-swappable battery.

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:

Table 20. Power adapter requirements

Description	Value
Power that is required from a power adapter to achieve optimal performance.	65 W
Power that charges the computer at a slower speed. **NOTE:** A warning message may appear informing you about the use of a lower-powered adapter and slower charging speed.	Less than 45 W
Minimum power that is required from a power adapter to operate the computer and charge the battery. **NOTE:** 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 **NOTE:** Ensure that the computer is connected to a 65 W power adapter for this feature to be supported.
ExpressCharge mode	Supported **NOTE:** ExpressCharge mode must also be enabled in the BIOS Setup screen by selecting **Power** > **Battery Configuration** > **ExpressCharge**, then pressing Enter. **NOTE:** Ensure that the computer is connected to a 65 W power adapter to achieve ExpressCharge .

Power adapter requirements (for computers shipped with 4-cell, 36 Wh battery)

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:

Table 21. Power adapter requirements

Description	Value
Power that is required from a power adapter to achieve optimal performance.	65 W

Table 21. Power adapter requirements (continued)

Description	Value
Power that charges the computer at a slower speed. **NOTE:** A warning message may appear informing you about the use of a lower-powered adapter and slower charging speed.	Less than 45 W
Minimum power that is required from a power adapter to operate the computer and charge the battery. **NOTE:** 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 **NOTE:** Ensure that the computer is connected to a 65 W power adapter for this feature to be supported.
ExpressCharge mode	Supported **NOTE:** ExpressCharge mode must also be enabled in the BIOS Setup screen by selecting **Power** > **Battery Configuration** > **ExpressCharge**, then pressing Enter. **NOTE:** Ensure that the computer is connected to a 65 W power adapter to achieve ExpressCharge .

Display

The following table lists the display specifications of your Latitude 7030 Rugged Extreme Tablet.

Table 22. Display specifications

Description		Values
Display type		10.1-inch, Full High Definition Plus (FHD+)
Touch options		Capacitive 10 fingers touch
Display-panel technology		Wide Viewing Angle (WVA)
Display-panel dimensions (active area):		
	Height	136.080 mm (5.357 in.)
	Width	217.728 mm (8.571 in.)
	Diagonal	256.755 mm (10.108 in.)
Display-panel native resolution		1920 x 1200
Luminance (typical)		1000 nits
Megapixels		2.304
Color gamut		100% (sRGB) typical
Pixels Per Inch (PPI)		224
Contrast ratio (minimum)		1000:1

Table 22. Display specifications (continued)

Description	Values
Response time (maximum)	35 ms
Refresh rate	60 Hz
Horizontal view angle	88 +/- degrees minimum
Vertical view angle	88 +/- degrees minimum
Pixel pitch	0.1134 x 0.1134 mm
Power consumption (maximum)	6.37 W
Anti-glare vs glossy finish	Anti-glare

Fingerprint reader

The following table lists the fingerprint-reader specifications of your Latitude 7030 Rugged Extreme Tablet.

Table 23. Fingerprint reader specifications

Description	Values
Fingerprint-reader sensor technology	Capacitive
Fingerprint-reader sensor resolution	362.86 dpi
Fingerprint-reader sensor pixel size	0.07 x 0.07

Sensor

The following table lists the sensor of your Latitude 7030 Rugged Extreme Tablet.

Table 24. Sensor

Sensor support
Hall Effect Sensor
Accelerometer + Gyroscope
eCompass/Magnetometer
Ambient Light Sensor
Proximity Sensor (SAR)

GPU—Integrated

The following table lists the specifications of the integrated Graphics Processing Unit (GPU) supported by your Latitude 7030 Rugged Extreme Tablet.

Table 25. GPU—Integrated

Controller	Memory size	Processor
Intel UHD Graphics	Shared system memory	12th Generation Intel Core i3

Table 25. GPU—Integrated (continued)

Controller	Memory size	Processor
Intel Iris Xᵉ Graphics	Shared system memory	12th Generation Intel Core i5/i7

Multiple display support matrix

The following table lists the multiple display support matrix for your Latitude 7030 Rugged Extreme Tablet.

Table 26. Multiple display support matrix

Graphics Card	Supported external displays with tablet internal display on	Supported external displays with tablet internal display off
Intel UHD Graphics	3	4
Intel Iris Xᵉ Graphics	3	4

Hardware security

The following table lists the hardware security of your Latitude 7030 Rugged Extreme Tablet.

Table 27. Hardware security

Hardware security
Wedge-shaped lock slot
Trusted Platform Module (TPM) 2.0 discrete
ControlVault 3 Advanced Authentication with FIPS 140-2 Level 3 Certification
FIPS (Federal Information Processing Standards) 140-2 certification for Trusted Platform Module (TPM)
Trusted Computing Group(TCG) Certification for TPM
Fingerprint Reader with Control Vault 3
Contacted Smart-card and Control Vault 3
Optional Contactless Smart-card, NFC, and Control Vault 3
Self Encrypting Drive (SED), Opal 2.0 only - PCIe Interface
Chassis Intrusion Detection
Battery Removal Detection
RPMC SPI flash
SPI Flash Tamper Detection/Prevention Shunt Circuit

Smart-card reader

Contactless smart-card reader

This section lists the contactless smart-card reader specifications of your Latitude 7030 Rugged Extreme Tablet.

Table 28. Contactless smart-card reader specifications

Title	Description	Dell ControlVault 3 contactless smart-card reader with NFC
Felica Card Support	Reader and software capable of supporting Felica contactless cards	Yes
ISO 14443 Type A Card Support	Reader and software capable of supporting ISO 14443 Type A contactless cards	Yes
ISO 14443 Type B Card Support	Reader and software capable of supporting ISO 14443 Type B contactless cards	Yes
ISO/IEC 21481	Reader and software capable of supporting ISO/IEC 21481 compliant contactless cards and tokens	Yes
ISO/IEC 18092	Reader and software capable of supporting ISO/IEC 21481 compliant contactless cards and tokens	Yes
ISO 15693 Card Support	Reader and software capable of supporting ISO15693 contactless cards	Yes
NFC Tag Support	Supports reading and processing of NFC compliant tag information	Yes
NFC Reader Mode	Support for NFC Forum Defined Reader mode	Yes
NFC Writer Mode	Support for NFC Forum Defined Writer mode	Yes
NFC Peer-to-Peer Mode	Support for NFC Forum Defined Peer to Peer mode	Yes
EMVCo Compliant	Compliant with EMVCO smart-card standards as posted to www.emvco.com	Yes
EMVCo Certified	Formally certified based on EMVCO smart-card standards	Yes
NFC Proximity OS Interface	Enumerates NFP (Near Field Proximity) device for OS to utilize	Yes
PC/SC OS interface	Personal Computer/Smart-card specification for integration of hardware readers into personal computer environments	Yes
CCID driver compliance	Common driver support for Integrated Circuit-card Interface Device for OS level drivers	Yes
Windows Certified	Device certified by Microsoft WHCK	Yes
Dell ControlVault support	Device connects to Dell ControlVault for usage and processing	Yes

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

Title	Description	Dell ControlVault 3 contactless smart-card reader with NFC
FIDO2 compliance	Dell ControlVault 3 Smart-card reader is compliant with the FIDO SPEC	Yes

NOTE: 125 Khz proximity cards are not supported.

Table 29. Supported cards

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

Table 30. RFID card

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

Table 30. RFID card (continued)

RFID card description	Card type
G&D-SCE6.0 FIPS 144K Dual + 1K Mifare	ISO/IEC 14443A (Type 4)
G&D-SCE6.0 non-FIPS 144K Dual + 1 K Mifare	ISO/IEC 14443A (Type 4)
G&D-SCE7.0 FIPS 144K	ISO/IEC 14443A (Type 4)
FeliCa Standard RC-S962 (RC-S888 chip)	6319-4 (Type 3)
FeliCa Lite-S RC-S966 (RC-S966 chip)	6319-4 (Type 3)
HID DESFIRE 4K Standard - 1450NGGNN	ISO/IEC 14443A (Type 4)
iClass 16K/16 - 2002PGGMN	ISO/IEC 15693 (iClass)
iClass SR 16K/16 - 2002HPGGMN	ISO/IEC 15693 (iClass)
ISO Card MiFARE 1K - 1430NGGNN	ISO/IEC 14443A (Type 2)
iClass 2k Tag - 2060PKSMN	ISO/IEC 15693 (iClass)
iClass Clamshell - 2080PMSMV	ISO/IEC 15693 (iClass)
iClass Prox 16K/16 - 2022BGGMNN	ISO/IEC 15693 (iClass)
NIST PIV1	ISO/IEC 14443A (Type 4)
Oberthur ID-One PIV	ISO/IEC 14443A (Type 4)
OBERTHUR-Oberthur ID-One Cosmo 128K V5.4 card	ISO/IEC 14443A (Type 4)
Gemalto TOP DL GX4 144K card	ISO/IEC 14443A (Type 4)
HID Seos Card	ISO/IEC 14443A (Type 4)

Contacted smart-card reader

The following table lists the contacted smart-card reader specifications of your Latitude 7030 Rugged Extreme Tablet.

Table 31. Contacted smart-card reader specifications

Title	Description	Dell ControlVault 3 smart-card reader
ISO 7816 -3 Class A Card Support	Reader capable of reading 5 V powered smart-mcard	Yes
ISO 7816 -3 Class B Card Support	Reader capable of reading 3 V powered smart-card	Yes
ISO 7816 -3 Class C Card support	Reader capable of reading 1.8 V powered smart-card	Yes
ISO 7816-1 Compliant	Specification for the reader	Yes
ISO 7816 -2 Compliant	Specification for smart-card device physical characteristics (size, location of connection points, etc.)	Yes
T=0 support	Cards support character level transmission	Yes
T=1 support	Cards support block level transmission	Yes
EMVCo Compliant	Compliant with EMVCo (for electronic payment standards) smart-card standards as posted to www.emvco.com	Yes
EMVCo Certified	Formally certified based on EMVCO smart-card standards	Yes

Table 31. Contacted smart-card reader specifications (continued)

Title	Description	Dell ControlVault 3 smart-card reader
PC/SC OS interface	Personal Computer/Smart-card specification for integration of hardware readers into personal computer environments	Yes
CCID driver compliance	Common driver support for Integrated Circuit-card Interface Device for OS level drivers.	Yes
Windows Certified	Device certified by WHCK	Yes
FIPS 201 (PIV/HSPD-12) Compliant via GSA	Device compliant with FIPS 201/PIV/ HSPD-12 requirements	Yes
FIDO2 compliance	Dell ControlVault 3 Smart-card reader is compliant with the FIDO SPEC	Yes

Operating and storage environment

This table lists the operating and storage specifications of your Latitude 7030 Rugged Extreme Tablet.

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

Table 32. Computer environment

Description	Operating	Storage
Temperature range	-29°C to 63°C (-20.2°F to 145.4°F)	-51°C to 71°C (-59.8°F to 159.8°F)
Relative humidity (maximum)	10% to 95% (maximum dew point temperature = 26°C)	5% to 95% (maximum dew point temperature = 33°C)
Vibration (maximum)*	• Vertical - 1.08 GRMS • Transverse - 0.21 GRMS • Longitudinal - 0.76 GRMS	7.70 GRMS (each axis)
Shock (maximum)	40 G††	185 G†
Altitude range	12192 m (40,000 ft)	12192 m (40,000 ft)
CAUTION: Operating and storage temperature ranges may differ among components, so operating or storing the device outside these ranges may impact the performance of specific components.		

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

† Measured using a 2 ms half-sine pulse.

†† Measured using a 11 ms saw-tooth pulse.

4

Working inside your computer

Safety instructions

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

WARNING: Before working inside your computer, read the safety information that is shipped with your computer. For more safety best practices, see Dell Regulatory Compliance Home Page.

WARNING: Disconnect your computer from all power sources before opening the computer cover or panels. After you finish working inside the computer, replace all covers, panels, and screws before connecting your computer to an electrical outlet.

CAUTION: To avoid damaging the computer, ensure that the work surface is flat, dry, and clean.

CAUTION: To avoid damaging the components and cards, handle them by their edges, and avoid touching the pins and the contacts.

CAUTION: You should only perform troubleshooting and repairs as authorized or directed by the Dell technical support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. See the safety instructions that is shipped with the product or at Dell Regulatory Compliance Home Page.

CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity which could harm internal components.

CAUTION: When you disconnect a cable, pull it by its connector or its pull tab, not the cable itself. Some cables have connectors with locking tabs or thumbscrews that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending the connector pins. When connecting cables, ensure that the connector on the cable is correctly oriented and aligned with the port.

CAUTION: Press and eject any installed card from the media-card reader.

CAUTION: Exercise caution when handling rechargeable Li-ion batteries in laptops. Swollen batteries should not be used and should be replaced and disposed properly.

NOTE: The color of your computer and certain components may differ from what is shown in this document.

Installation and operating instructions

An installation manual is provided with each unit to direct the user on proper installation and operation of the device.

NOTE: Warning and Safety instructions are provided in English and French for Canadian Certification.

NOTE: Suitable for use in class I, division 2, groups A, B, C and D hazardous locations, or nonhazardous locations only.

WARNING: Explosion hazard - Do not disconnect equipment (rechargeable Lithium-ion battery) unless power has been switched off or the area is known to be non-hazardous.

WARNING: Explosion hazard: Substitution of any component can impair suitability for class I, division 2.

NOTE: Ambient temperature: -29°C ≤ Tamb ≤ 40°C

NOTE: Temperature code: T4

WARNING: Explosion hazard - Do not use these external connections in a hazardous location: POGO ports, smart card reader, SIM-card slot, RJ45 port, USB 3.0 port, DC-in Jack, audio jack, microSD-card reader, antenna pass-through port, or USB type-C port.

WARNING: Explosion hazard - The tablet is to be only powered from the battery pack while in hazardous locations. The power adapter is not certified for use in hazardous locations and not to be used in hazardous locations.

WARNING: Explosion hazard - The battery must only be changed or charged in an area free of ignitable concentrations.

WARNING: Explosion hazard - Do not remove or replace the microSD-card, SIM card, smart card reader and/or battery pack while the circuit is live unless the area is free of ignitible concentrations.

NOTE: To avoid risk of fire or explosion, replace battery manufactured by Simplo Technology Co., Ltd. or Shenzhen BYD Lithium Battery Co., Ltd only. Use of any another battery can cause risk of fire or explosion.

Before working inside your tablet

About this task

To avoid damaging your tablet, perform the following steps before you begin working inside the tablet:

Steps

1. Ensure that you follow the Safety Instruction.
2. Ensure that your work surface is flat and clean to prevent the tablet cover from being scratched.
3. Turn off your tablet.
4. If the tablet is connected to a docking device (docked) such as the mobile keyboard or a docking station, undock it.
5. Disconnect your tablet and all attached devices from their electrical outlets.
6. Press and hold the power button while the tablet is unplugged to ground the system board.

   NOTE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface simultaneously as touching a connector on the back of the tablet.

7. Remove any media card and optical disc from your tablet, if applicable.
8. Enter the service mode, if you are able to power on your tablet.

   Service Mode

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

   CAUTION: If you are unable to turn on the tablet to put it into Service Mode or the computer does not support Service Mode then proceed to disconnect the battery cable. To disconnect the battery cable, follow the steps in Removing the back-cover assembly.

   NOTE: Ensure that your tablet is shut down and the AC adapter is disconnected.

   a. Hold **<B>** key on the keyboard and press the power button for 3 seconds or until the Dell logo appears on the screen.
   b. Press any key to continue.
   c. If the AC adapter is not disconnected, a message prompting you to remove the AC adapter appears on the screen. Remove the AC adapter and then press any key to continue the **Service Mode** procedure. The **Service Mode** procedure automatically skips the following step if the **Owner Tag** of the tablet is not set up in advance by the user.
   d. When the ready-to-proceed message appears on the screen, press any key to proceed. The tablet emits three short beeps and shuts down immediately.
   e. Once the tablet shuts down, it has successfully entered Service Mode.

NOTE: If you are unable to power on your tablet or unable to enter service mode skip this process.

Safety precautions

The safety precautions section details the primary steps to be taken before performing any disassembly instructions.

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

- Turn off the computer and all attached peripherals.
- Disconnect the computer from AC power.
- Disconnect all network cables and peripherals from the computer.
- Use an ESD field service kit when working inside any tablet to avoid electrostatic discharge (ESD) damage.
- After removing a computer component, carefully place the removed component on an anti-static mat.
- Wear shoes with non-conductive rubber soles to reduce the chance of getting electrocuted.
- Unplugging, pressing, and holding the power button for 15 seconds should discharge residual power in the system board.

Standby power

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

Bonding

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

Electrostatic discharge—ESD protection

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

Due to the increased density of semiconductors used in recent Dell products, the sensitivity to static damage is now higher than in previous Dell products. For this reason, some previously approved methods of handling parts are no longer applicable.

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

- **Catastrophic** – Catastrophic failures represent approximately 20 percent of ESD-related failures. The damage causes an immediate and complete loss of device functionality. An example of catastrophic failure is a memory module that has received a static shock and immediately generates a "No POST/No Video" symptom with a beep code that is emitted for missing or non-functional memory.
- **Intermittent** – Intermittent failures represent approximately 80 percent of ESD-related failures. The high rate of intermittent failures means that most of the time when damage occurs, it is not immediately recognizable. The memory module receives a static shock, but the tracing is merely weakened and does not immediately produce outward symptoms that are related to the damage. The weakened trace may take weeks or months to melt, and in the meantime may cause degradation of memory integrity, intermittent memory errors, and so on.

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

Perform the following steps to prevent ESD damage:

- Use a wired ESD wrist strap that is properly grounded. Wireless anti-static straps do not provide adequate protection. Touching the chassis before handling parts does not ensure adequate ESD protection on parts with increased sensitivity to ESD damage.
- Handle all static-sensitive components in a static-safe area. If possible, use anti-static floor pads and workbench pads.

- When unpacking a static-sensitive component from its shipping carton, do not remove the component from the anti-static packing material until you are ready to install the component. Before unwrapping the anti-static packaging, use the anti-static wrist strap to discharge the static electricity from your body.
- Before transporting a static-sensitive component, place it in an anti-static container or packaging.

ESD Field Service kit

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

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

Working Environment

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

ESD Packaging

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

Components of an ESD Field Service kit

The components of an ESD Field Service kit are:

- **Anti-Static Mat** – The anti-static mat is dissipative and parts can be placed on it during service procedures. When using an anti-static mat, your wrist strap should be snug and the bonding wire should be connected to the anti-static mat and to any bare metal on the computer being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the anti-static mat. ESD-sensitive items are safe in your hand, on the anti-static mat, in the computer, or inside an ESD bag.
- **Wrist Strap and Bonding Wire** – The wrist strap and bonding wire can be either directly connected between your wrist and bare metal on the hardware if the ESD mat is not required, or connected to the anti-static mat to protect hardware that is temporarily placed on the mat. The physical connection of the wrist strap and bonding wire between your skin, the ESD mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, anti-static mat, and bonding wire. Never use wireless wrist straps. Always be aware that the internal wires of a wrist strap are prone to damage from normal wear and tear, and must be checked regularly with a wrist strap tester in order to avoid accidental ESD hardware damage. It is recommended to test the wrist strap and bonding wire at least once per week.
- **ESD Wrist Strap Tester** – The wires inside an ESD strap are prone to damage over time. When using an unmonitored kit, it is a best practice to regularly test the strap prior to each service call, and at a minimum, test once per week. A wrist strap tester is the best method for doing this test. If you do not have your own wrist strap tester, check with your regional office to find out if they have one. To perform the test, plug the bonding-wire of the wrist-strap into the tester while it is strapped to your wrist and push the button to test. A green LED is lit if the test is successful; a red LED is lit and an alarm sounds if the test fails.

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

Transporting sensitive components

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

After working inside your tablet

About this task

After you complete any replacement procedure, ensure that you connect external devices, cards, and cables before turning on your tablet.

CAUTION: To avoid damage to the tablet, use only the battery that is designed for this particular Dell tablet. Do not use batteries that are designed for other Dell tablets.

Steps

1. Connect any external devices, such as a mobile keyboard or a docking station, and replace any media card that you removed before working on your tablet.
2. Connect your tablet and all attached devices to their electrical outlets.

   NOTE: To exit service mode, ensure to connect the AC adapter to the power-adapter port on your computer.

3. Press the power button to turn on the tablet. Your tablet will automatically return to normal functioning mode.

BitLocker

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

The installation of the following components triggers BitLocker:

- Hard disk drive or solid-state drive
- System board

Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #0
- Phillips screwdriver #1
- Phillips screwdriver #2
- T8 screwdriver
- Plastic scribe

Screw list

NOTE: When removing screws from a component, it is recommended to note the screw type and the quantity of screws, and then place them in a screw storage box. This is to ensure that the correct number of screws and correct screw type is restored when the component is replaced.

NOTE: Some computers have magnetic surfaces. Ensure that the screws are not left attached to such surfaces when replacing a component.

NOTE: Screw color may vary depending on the configuration ordered.

Table 33. Screw list

Component	Screw type	Quantity	Screw image
Handle	M3.5x14	2	 Figure 13. M3.5x14 screw
Back-cover assembly	M2.5x6.5	19	 Figure 14. M2.5x6.5 screw
Power-button daughter-board FPC	M2x3	2	 Figure 15. M2x3 screw
Internal battery-support brackets	M2x3	6	 Figure 16. M2x3 screw
Internal battery	M2x6	4	 Figure 17. M2x6 screw  Figure 18. M2.5x6.5 screw
I/O daughter-board FPC-bracket	Captive screw **NOTE:** Screws are part of the I/O daughter-board FPC bracket.	2	
USB Type-C bracket	M2x6	3	 Figure 19. M2x6 screw

Table 33. Screw list (continued)

Component	Screw type	Quantity	Screw image
I/O daughter-board	M2x6	1	 Figure 20. M2x6 screw
Wireless-card bracket	Captive screw **NOTE:** Screws are part of the wireless-card bracket.	1	
Camera-connector bracket	M2x3	3	 Figure 21. M2x3 screw
World-facing camera	M2x3	2	 Figure 22. M2x3 screw
Front camera and microphone assembly	M2x3	2	 Figure 23. M2x3 screw
Blank top-cover	M2x6	4	 Figure 24. M2x6 screw
RJ45-port assembly	M1x2.65 M2x6	2 4	 Figure 25. M1x2.65 screw  Figure 26. M2x6 screw
USB-port assembly	M1x2.65 M2x6	2 4	 Figure 27. M1x2.65 screw  Figure 28. M2x6 screw
Audio-port assembly	M1x2.65 M2x6	2 4	 Figure 29. M1x2.65 screw

Table 33. Screw list (continued)

Component	Screw type	Quantity	Screw image
			 Figure 30. M2x6 screw
1D-2D barcode-scanner assembly	M1x2.65 M2x6	2 4	 Figure 31. M1x2.65 screw  Figure 32. M2x6 screw
4G WWAN-card heat-sink	M2x3 Captive screw **NOTE:** Screws are part of the 4G WWAN-card heat-sink.	1 3	 Figure 33. M2x3 screw
5G WWAN-card heat-sink	Captive screw **NOTE:** Screws are part of the 5G WWAN-card heat-sink.	4	
Fan and heat-sink assembly	M2x6 Captive screw **NOTE:** Screws are part of the fan and heat-sink assembly.	1 4	 Figure 34. M2x6 screw
WWAN/SSD connector bracket	Captive screw **NOTE:** Screws are part of the WWAN/SSD connector bracket.	2	
WWAN/SSD daughter-board	M2x3	3	 Figure 35. M2x3 screw
M.2 2230 solid-state drive	M2x3	1	 Figure 36. M2x3 screw
Docking FPC bracket	Captive screw **NOTE:** Screws are part of the Docking FPC bracket.	2	

Table 33. Screw list (continued)

Component	Screw type	Quantity	Screw image
System board	M2x3 Captive screw **NOTE:** Screw is a part of the system board.	3 1	 **Figure 37. M2x3 screw**

Major components of Latitude 7030 Rugged Extreme Tablet

The following image shows the major components of Latitude 7030 Rugged Extreme Tablet.

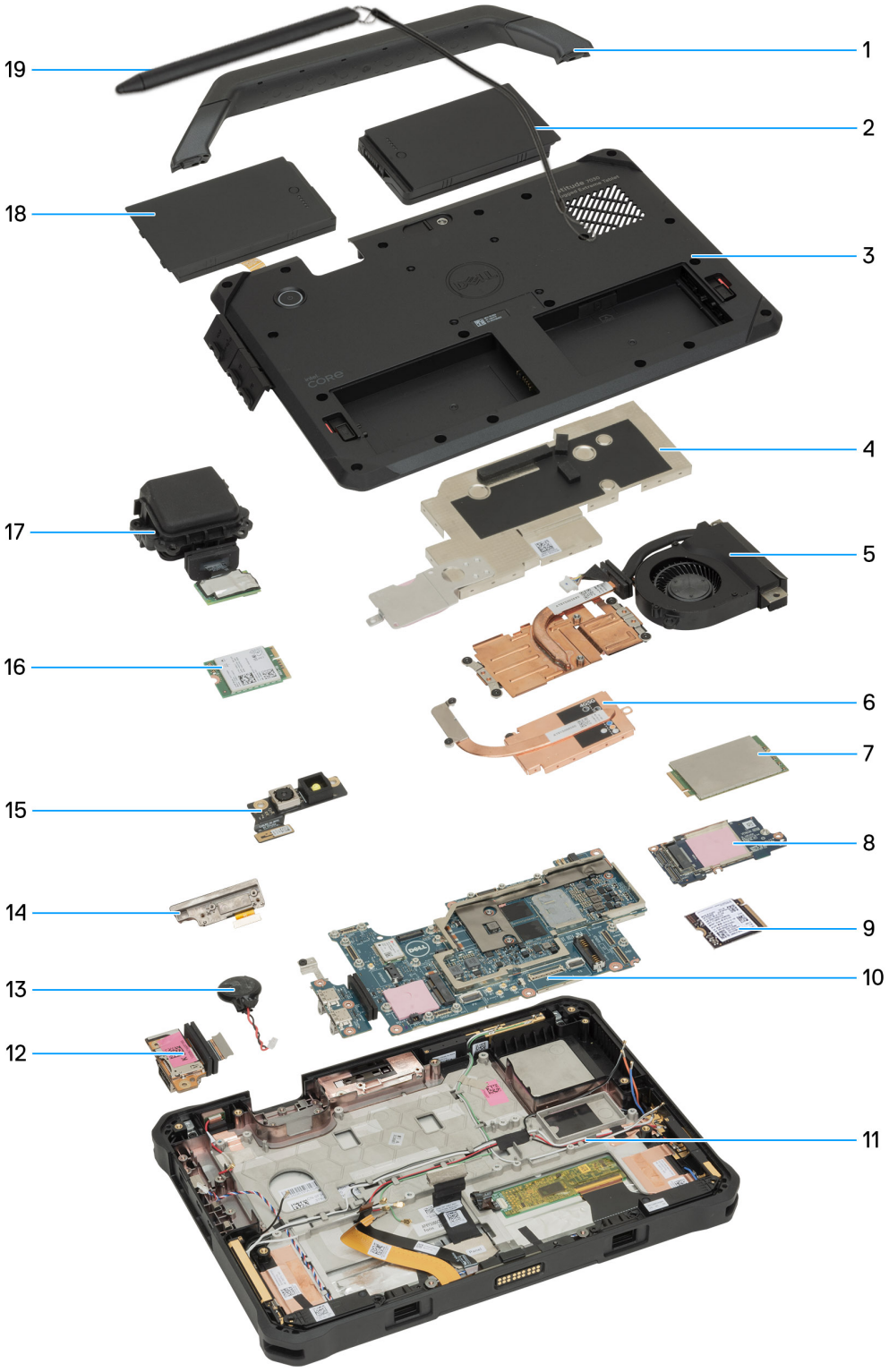

Figure 38. Major components of Latitude 7030 Rugged Extreme Tablet

1. Handle
2. Battery
3. Back-cover assembly
4. System-board shielding cover
5. Fan and heat-sink assembly
6. WWAN-card heat-sink
7. 5G WWAN card

8. WWAN/SSD daughter-board
9. Solid-state drive
10. System board
11. Display assembly
12. I/O daughter-board
13. Coin-cell battery
14. Front camera and microphone assembly
15. World-facing camera
16. Wireless card
17. 1D-2D barcode-scanner assembly
18. Battery
19. Stylus

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

5

Removing and installing Customer Replaceable Units (CRUs)

The replaceable components in this chapter are Customer Replaceable Units (CRUs).

CAUTION: Customers can replace only the Customer Replaceable Units (CRUs) following the safety precautions and replacement procedures.

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

Stylus

Removing the stylus

Prerequisites

1. Follow the procedure in Before working inside your tablet.

About this task

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

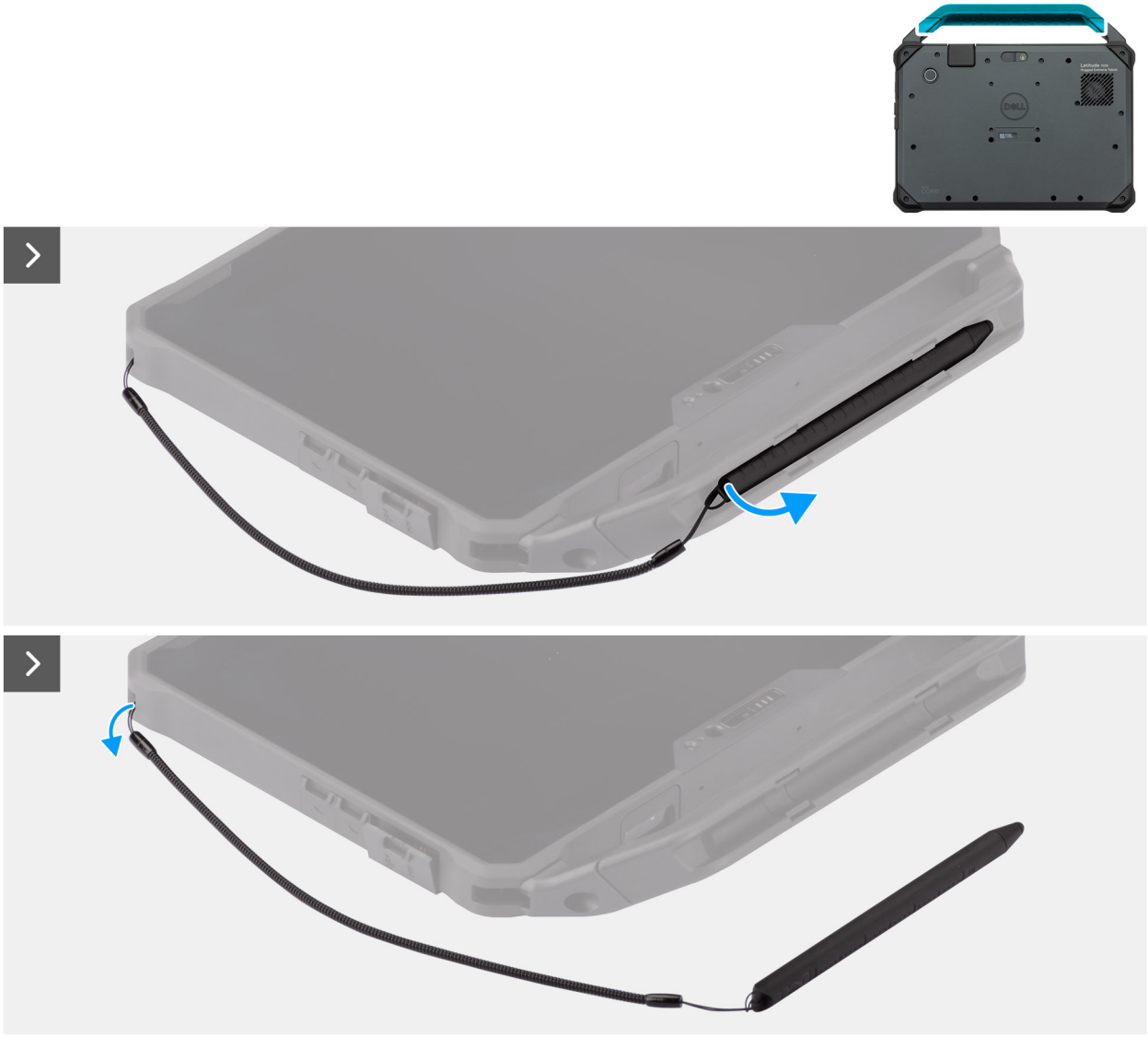

Figure 39. Removing the stylus

Figure 40. Removing the stylus

Steps

1. Using the lanyard, remove the stylus pen from the tablet.

NOTE: Avoid pulling the stylus with the stretchable thread.

2. Loosen the knot and slip the stylus through the hole to remove the tether from the tablet.
3. Loosen the knot and remove the lanyard from the stylus.

Installing the stylus

Prerequisites

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

About this task

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

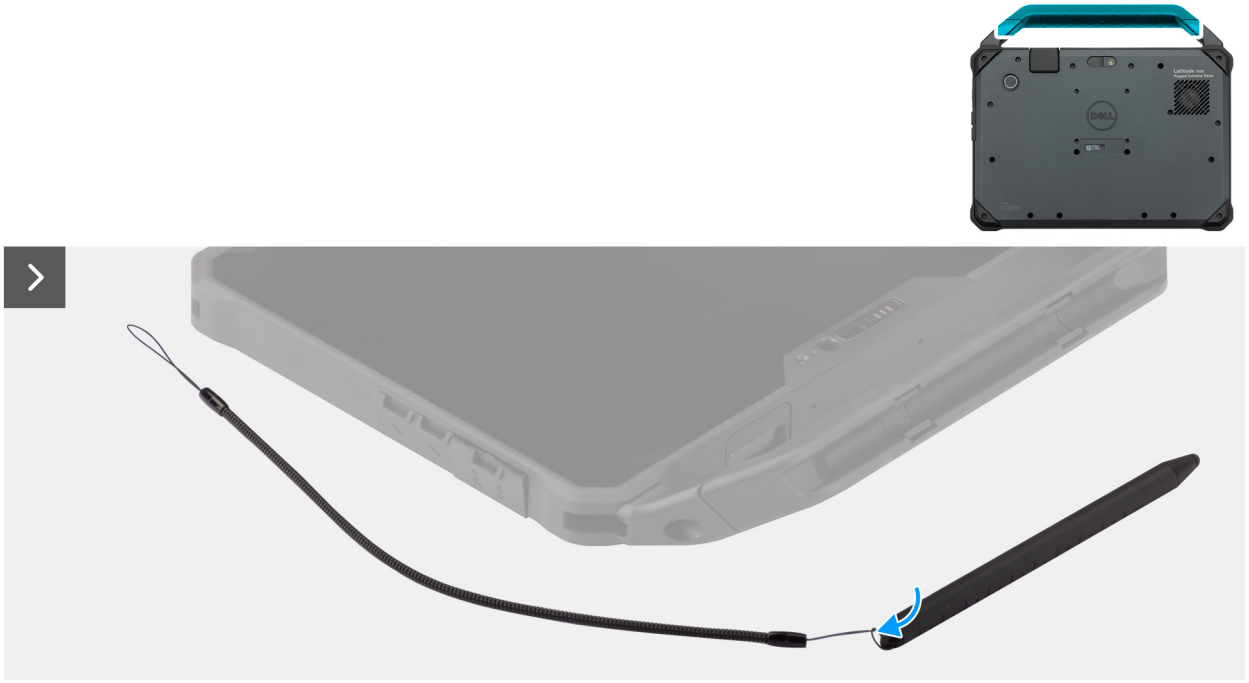

Figure 41. Installing the stylus

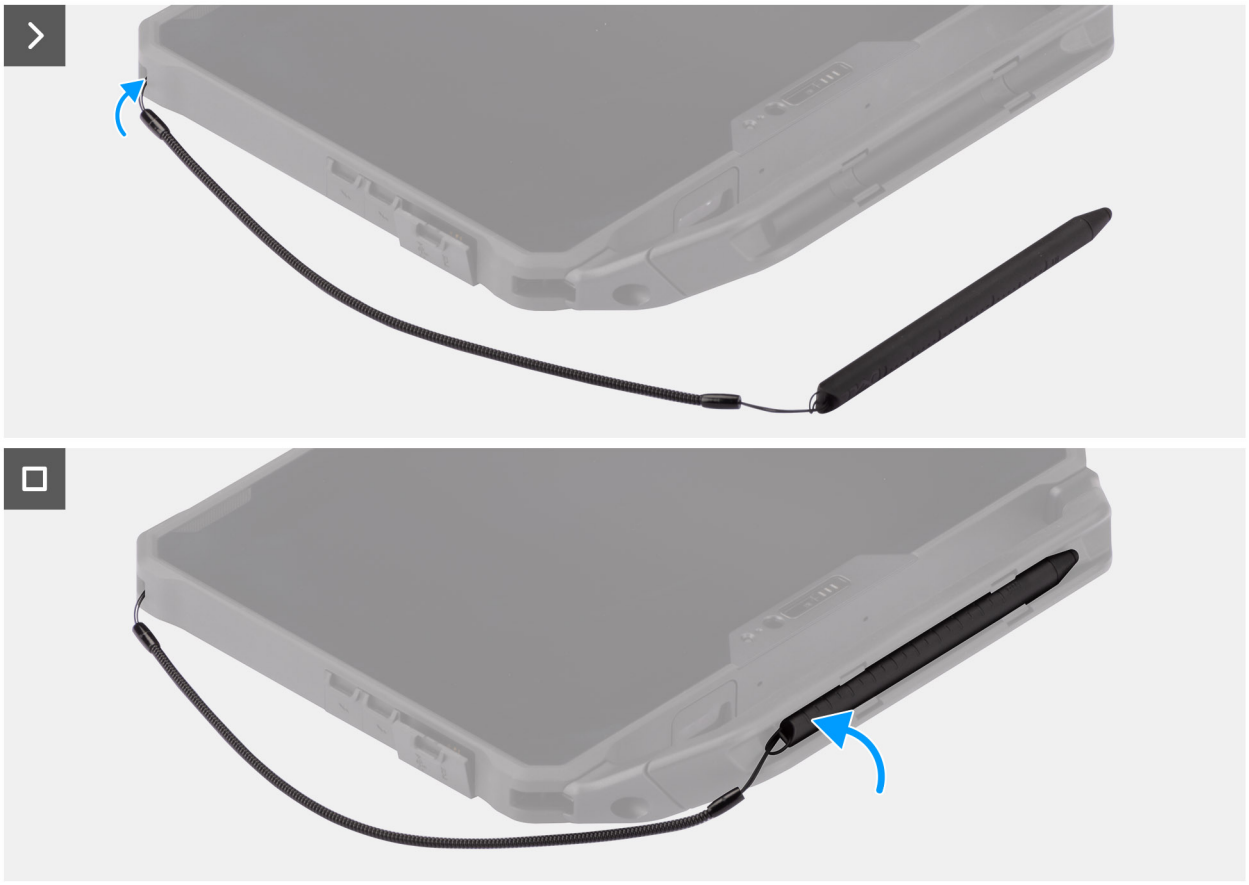

Figure 42. Installing the stylus

Steps

1. Slip the stylus through the hole to create a knot that holds the tether to the tablet.
2. Slip the lanyard through the hole to create a knot.
3. Insert the stylus into the slot on the tablet.

NOTE: When not in use, avoid hanging the stylus that is detached from its groove.

Next steps

1. Follow the procedure in After working inside your tablet.

Handle

Removing the handle

Prerequisites

1. Follow the procedure in Before working inside your tablet.

About this task

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

2x
M3.5x14

Figure 43. Removing the handle

Steps

1. Remove the two screws (M3.5x14) that secure the handle to the tablet.
2. Remove the handle from the tablet.

Installing the handle

Prerequisites

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

About this task

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

2x
M3.5x14

Figure 44. Installing the handle

Steps

1. Align the screw holes on the handle with the screw holes on the tablet.
2. Replace the two screws (M3.5x14) to secure the handle to the tablet .

Next steps

1. Follow the procedure in After working inside your tablet.

Hot-swappable batteries

Rechargeable Li-ion battery precautions

CAUTION:

- **Exercise caution when handling rechargeable Li-ion batteries.**

- **Discharge the battery completely before removing it. Disconnect the AC power adapter from the computer and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.**
- **Do not crush, drop, mutilate, or penetrate the battery with foreign objects.**
- **Do not expose the battery to high temperatures, or disassemble battery packs and cells.**
- **Do not apply pressure to the surface of the battery.**
- **Do not bend the battery.**
- **Do not use tools of any kind to pry on or against the battery.**
- **Ensure any screws during the servicing of this product are not lost or misplaced, to prevent accidental puncture or damage to the battery and other computer components.**
- **If the battery gets stuck inside your computer as a result of swelling, do not try to release it as puncturing, bending, or crushing a rechargeable Li-ion battery can be dangerous. In such an instance, contact Dell technical support for assistance. See Contact Support at Dell Support Site.**
- **Always purchase genuine batteries from Dell Site or authorized Dell partners and resellers.**
- **Swollen batteries should not be used and should be replaced and disposed properly. For guidelines on how to handle and replace swollen rechargeable Li-ion batteries, see Handling swollen rechargeable Li-ion batteries.**

Removing the hot-swappable batteries

NOTE: This procedure applies only to tablets shipped with hot-swappable batteries installed.

Prerequisites

1. Follow the procedure in Before working inside your tablet.

NOTE: This tablet can accommodate two hot-swap capable batteries (primary and optional). The removal procedure of the primary and optional batteries are identical.

About this task

The following images indicate the location of the hot-swappable batteries and provide a visual representation of the removal procedure.

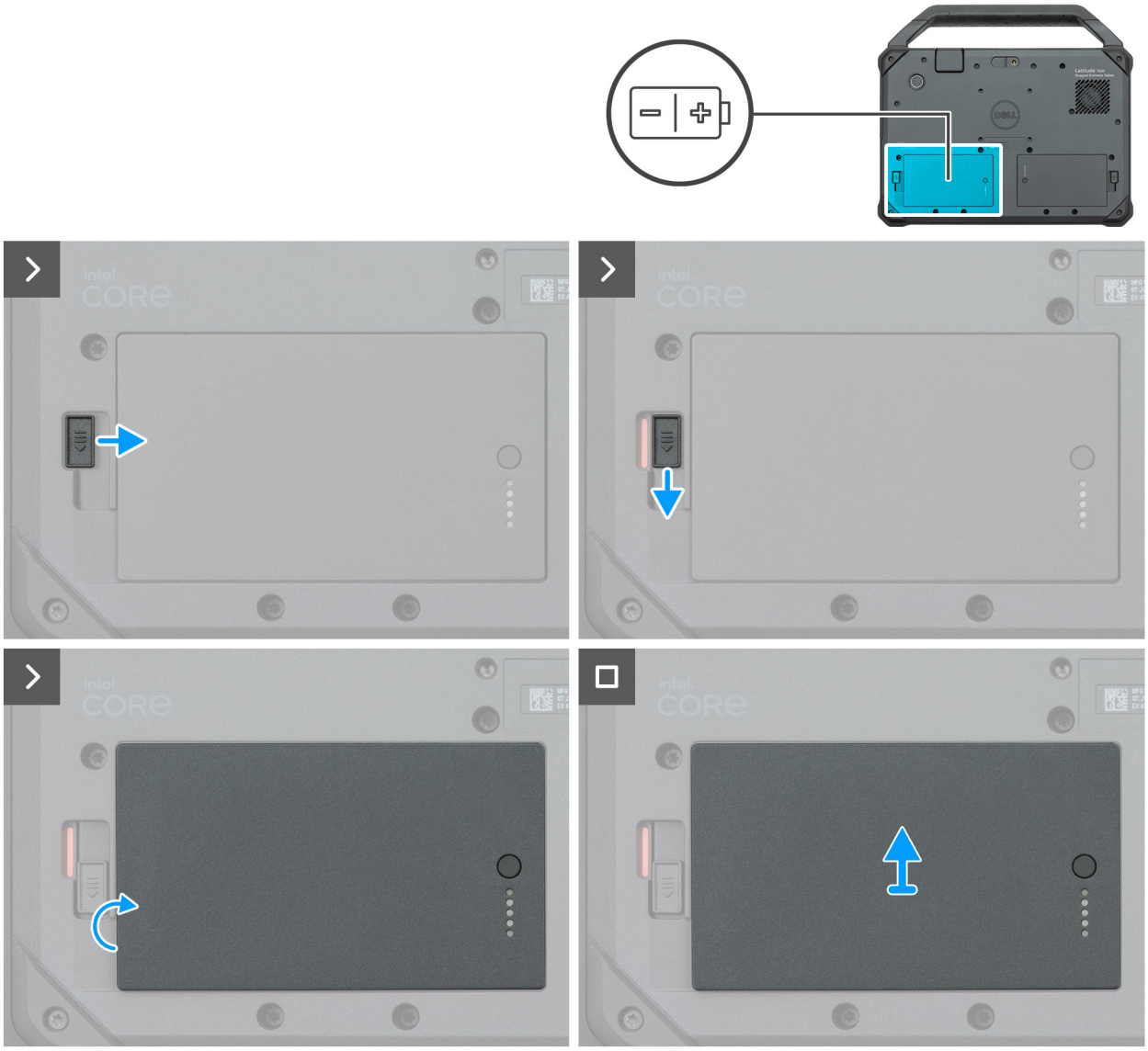

Figure 45. Removing the hot-swappable batteries

Steps

1. Slide the battery release latch to the unlock position.
2. Slide the latch down to unlock the battery.
3. Lift the battery out of the battery bay.
4. Remove the battery from the tablet.

Installing the hot-swappable batteries

NOTE: This procedure applies only to tablets shipped with hot-swappable batteries installed.

Prerequisites

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

About this task

NOTE: This tablet can accommodate two hot-swap capable batteries (primary and optional). The installation procedure of the primary and optional batteries are identical.

The following images indicate the location of the hot-swappable batteries and provide a visual representation of the installation procedure.

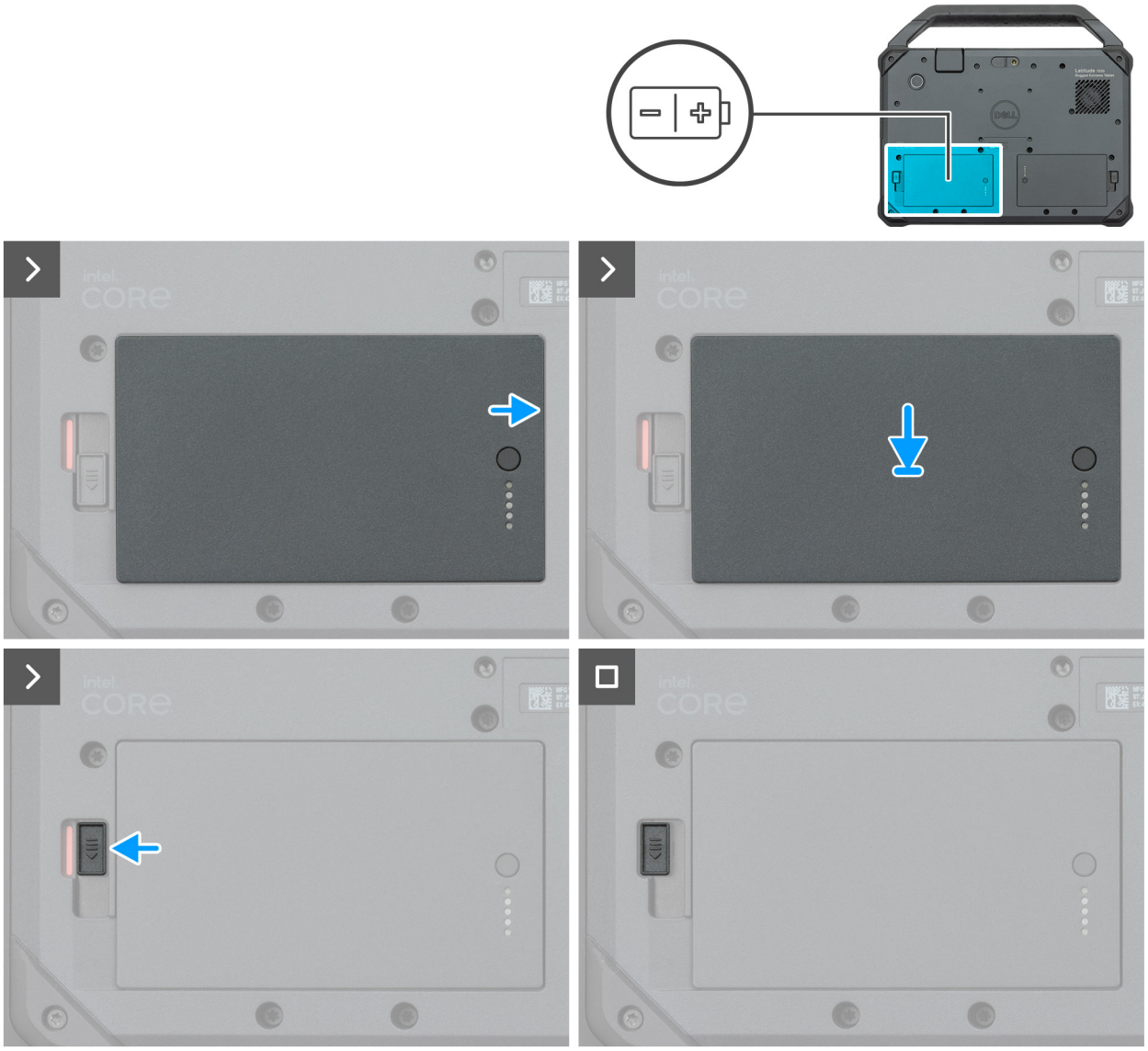

Figure 46. Installing the hot-swappable batteries

Steps

1. Align the pins on the battery with the connector on the tablet.

   NOTE: Ensure that the metal pin of the battery is aligned in place.

2. Place the battery into the battery bay until it clicks into place.
3. Slide the battery latch to the locked state.

   NOTE: Ensure that the battery release latch is in the locked state.

Next steps

1. Follow the procedure in After working inside your tablet.

Subscriber Identification Module (SIM) card with hot-swappable battery

Removing the SIM card (for hot-swappable battery)

NOTE: This procedure applies only to tablets shipped with hot-swappable batteries installed.

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the hot-swappable batteries.

About this task

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

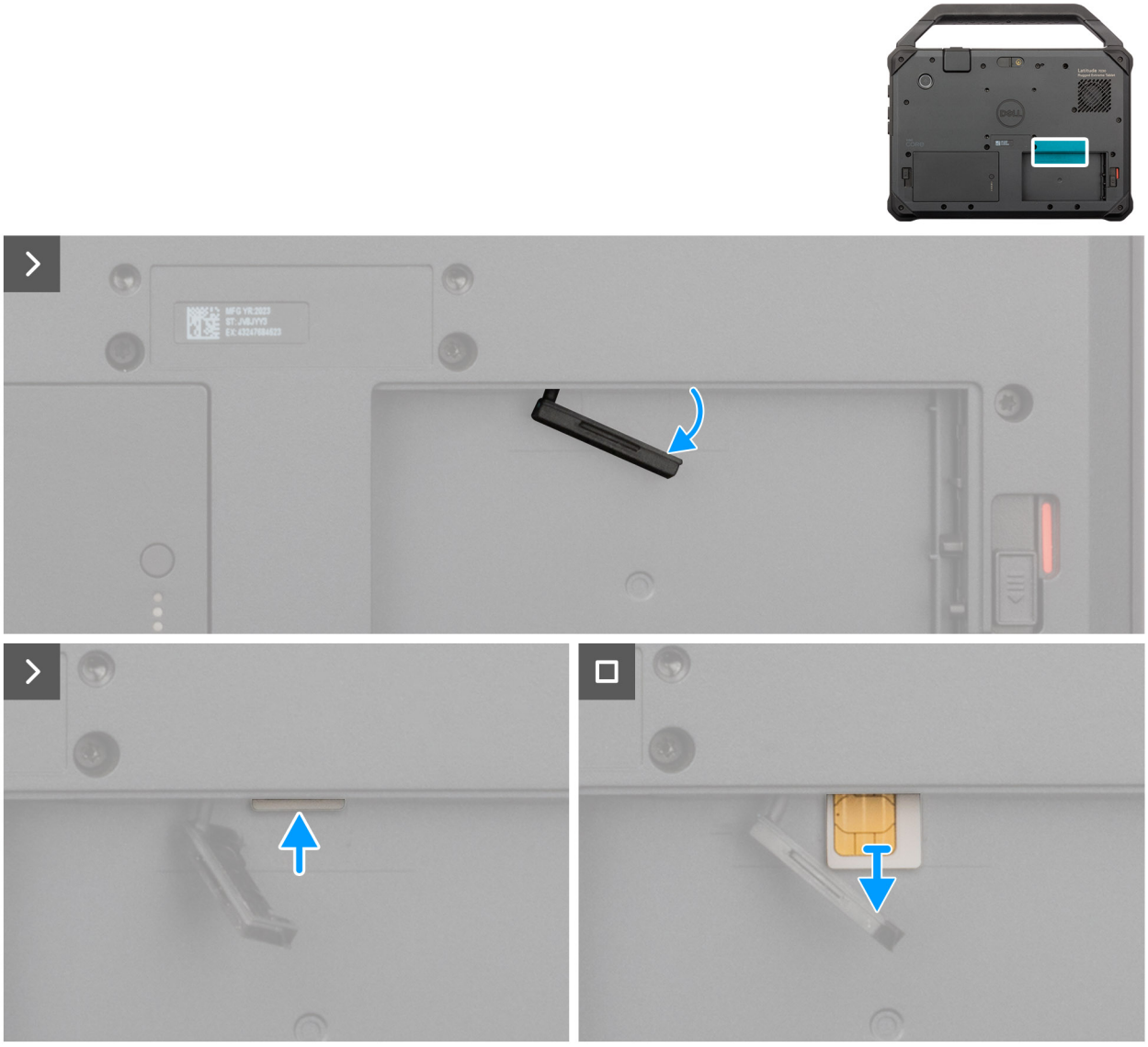

Figure 47. Removing the SIM card

Steps

1. Pry and open the SIM-slot door.
2. Flip the SIM-slot door to access the SIM card.
3. Press the SIM card, and slide it out of the slot.

   NOTE: Use a flat-pointed scribe to ease removing the SIM.

4. Flip the SIM-slot door and push until its closed.

Inserting the SIM card (for hot-swappable battery)

NOTE: This procedure applies only to tablets shipped with hot-swappable batteries installed.

Prerequisites

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

About this task

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

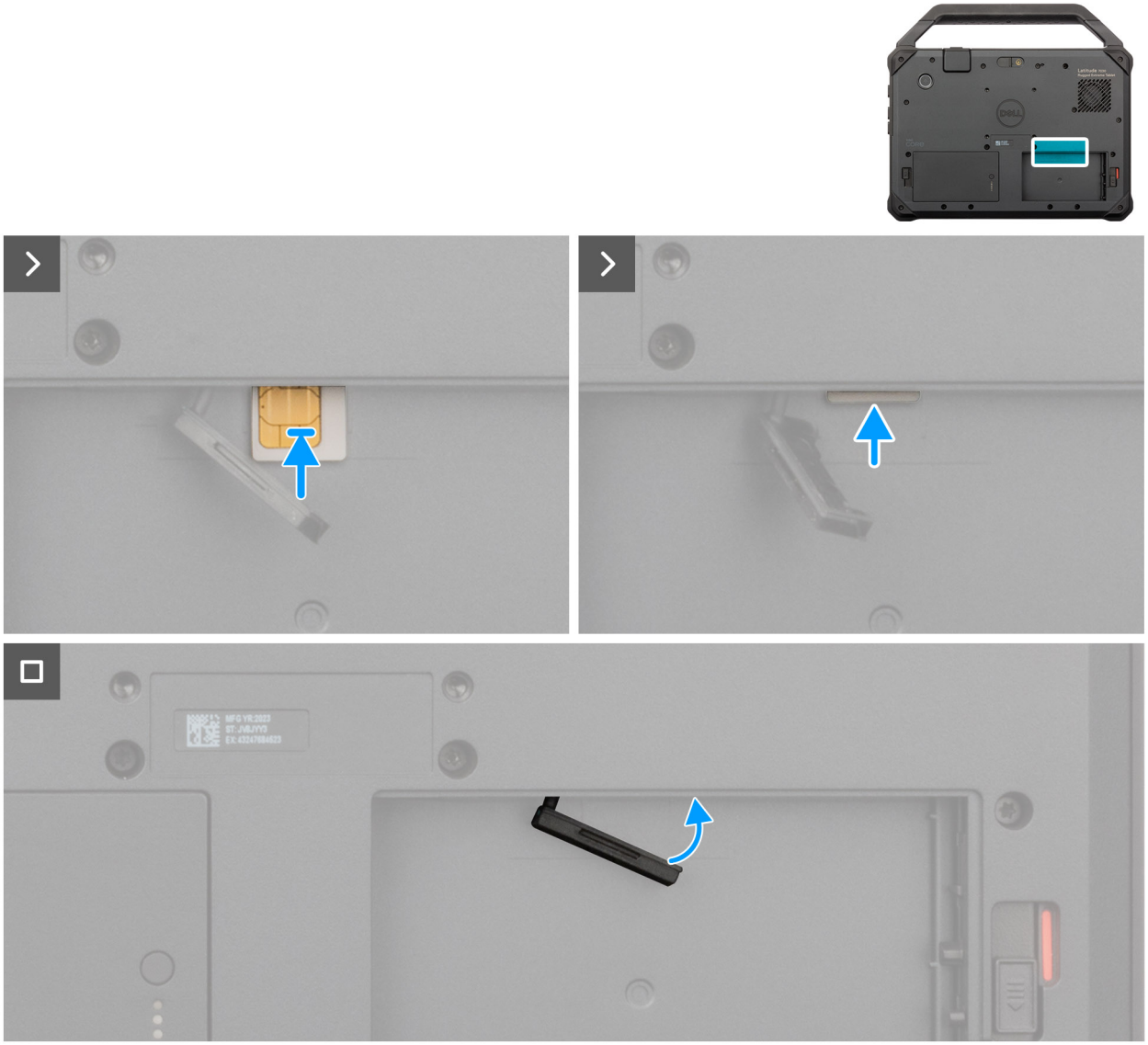

Figure 48. Inserting the SIM card

Steps

1. Pry and open the SIM-slot door.
2. Flip the SIM-slot door to access the slot.
3. Insert the SIM card in the slot until it is locked.
4. Flip the SIM-slot door again and close the SIM slot to the initial state.

Next steps

1. Install the hot-swappable batteries.
2. Follow the procedure in After working inside your tablet.

6

Removing and installing Field Replaceable Units (FRUs)

The replaceable components in this chapter are Field Replaceable Units (FRUs).

CAUTION: The information in this removing and installing FRU's section is intended for authorized service technicians only.

CAUTION: To avoid any potential damage to the component or loss of data, ensure that an authorized service technician replaces the Field Replaceable Units (FRUs).

CAUTION: Dell Technologies recommends that this set of repairs, if needed, to be conducted by trained technical repair specialists.

CAUTION: As a reminder, your warranty does not cover damages that may occur during FRU repairs that are not authorized by Dell Technologies.

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

Back-cover assembly

Removing the base-cover assembly

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.

About this task

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

Figure 49. Removing the base-cover assembly

Figure 50. Removing the base-cover assembly

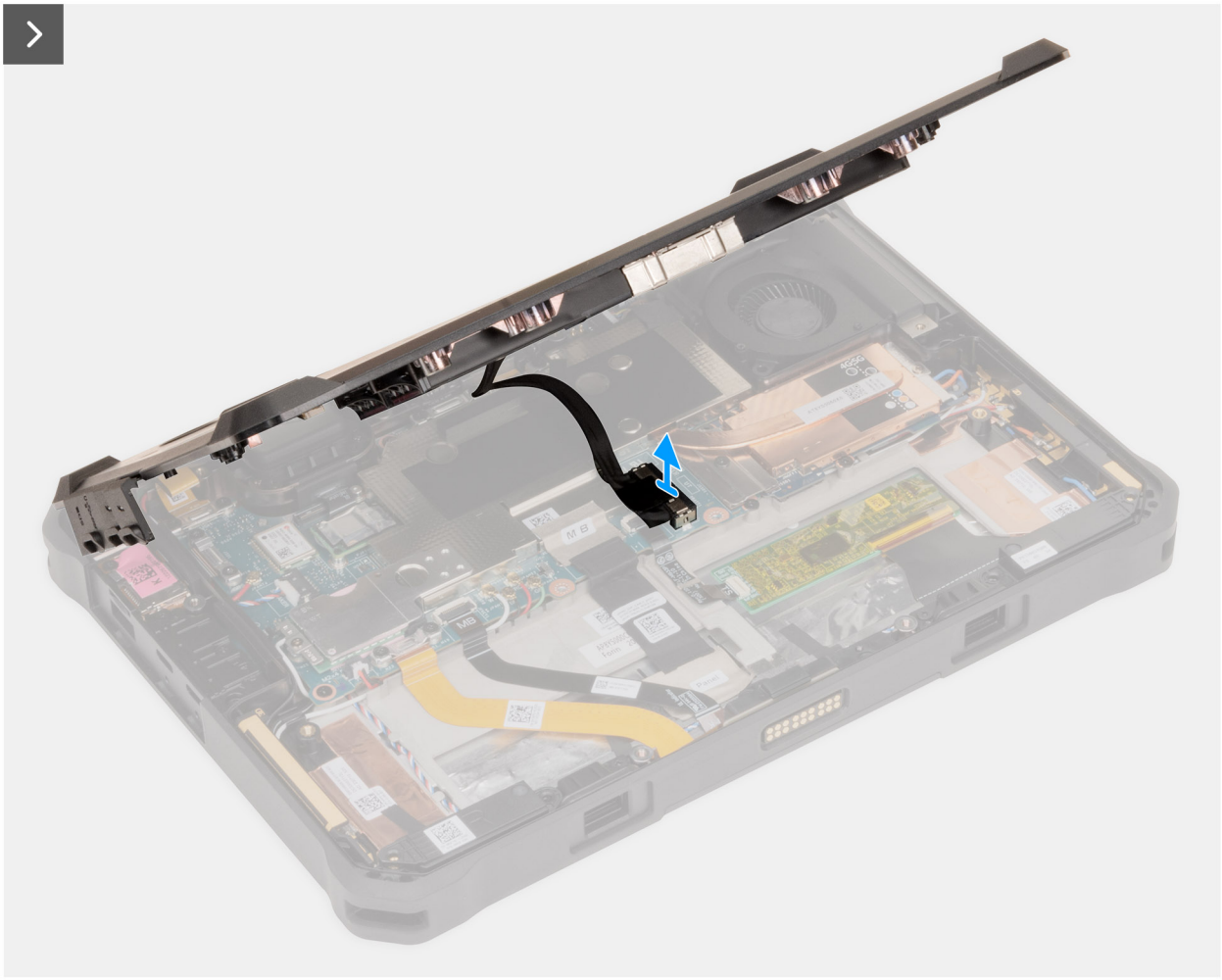

Figure 51. Removing the base-cover assembly

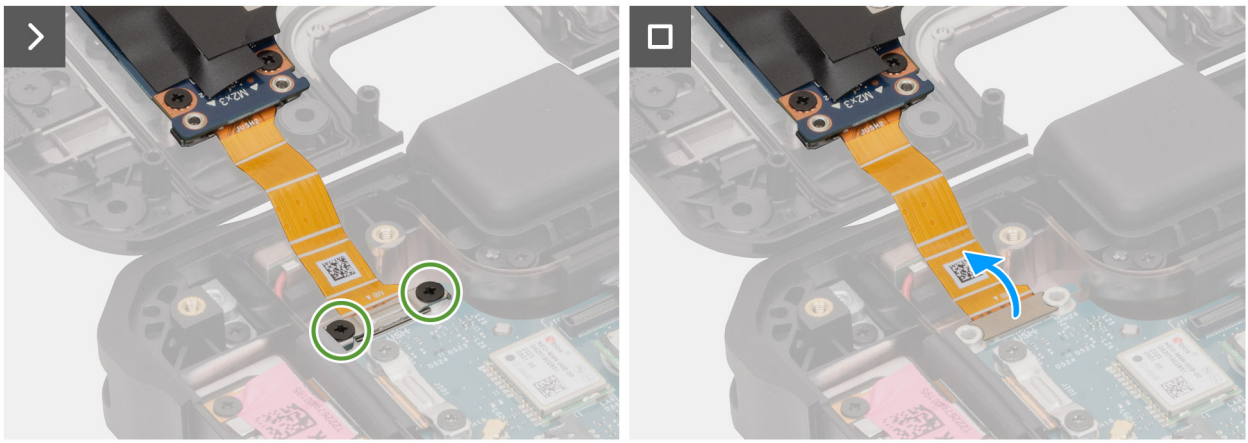

Figure 52. Removing the base-cover assembly

Steps

1. Place the tablet on a flat and clean surface.
2. Remove the 19 screws (M2.5x6.5) that secure the base-cover assembly in place.
3. Using a plastic scribe, pry the back-cover assembly from the bottom side.
4. Carefully lift the bottom side of the base-cover assembly and open it at an angle of 45 degrees.

CAUTION: Do not open the back-cover assembly beyond a 90-degree angle as it damages the battery cable and power-button daughter-board FPC. Both the cables (the battery cable and power-button daughter-board FPC) must be disconnected in order to remove the back-cover assembly.

5. Disconnect the battery cable from the connector on the system board and then open the back cover to a full angle.
6. Flip over the back-cover assembly and place it on a flat surface.

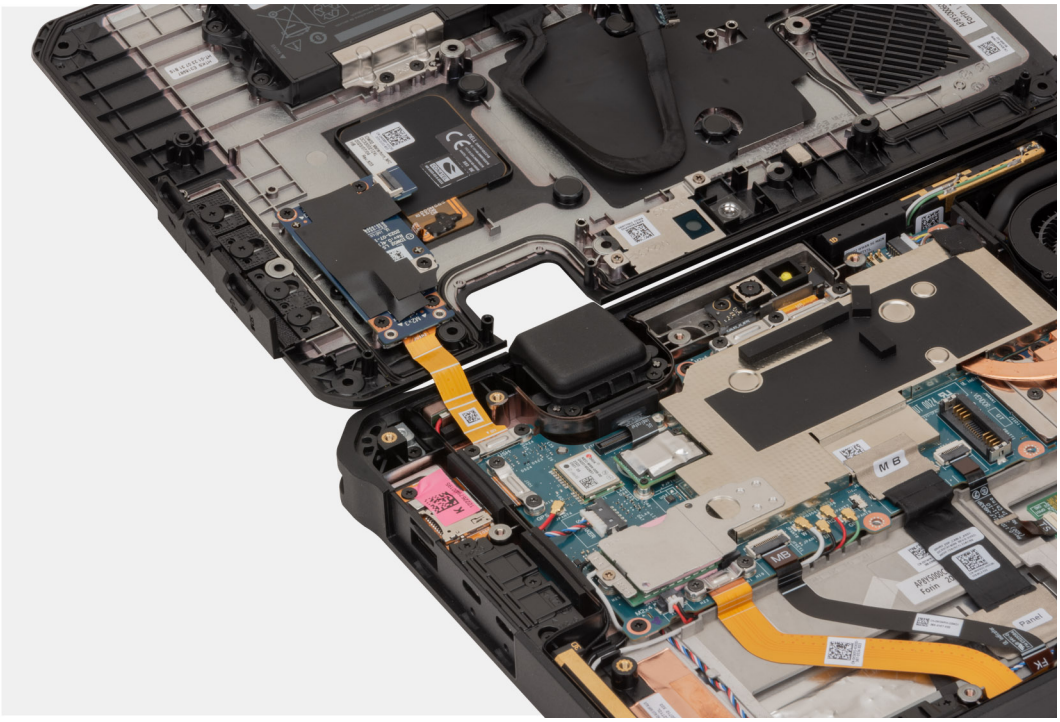

Figure 53. Removing the base-cover assembly

7. Remove the two screws (M2x3) that secure the power-button daughter board FPC to the system board.
8. Disconnect the power-button daughter-board FPC from the connector system board.
9. Remove the back-cover assembly away from the tablet.

Installing the base-cover assembly

Prerequisites

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

About this task

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

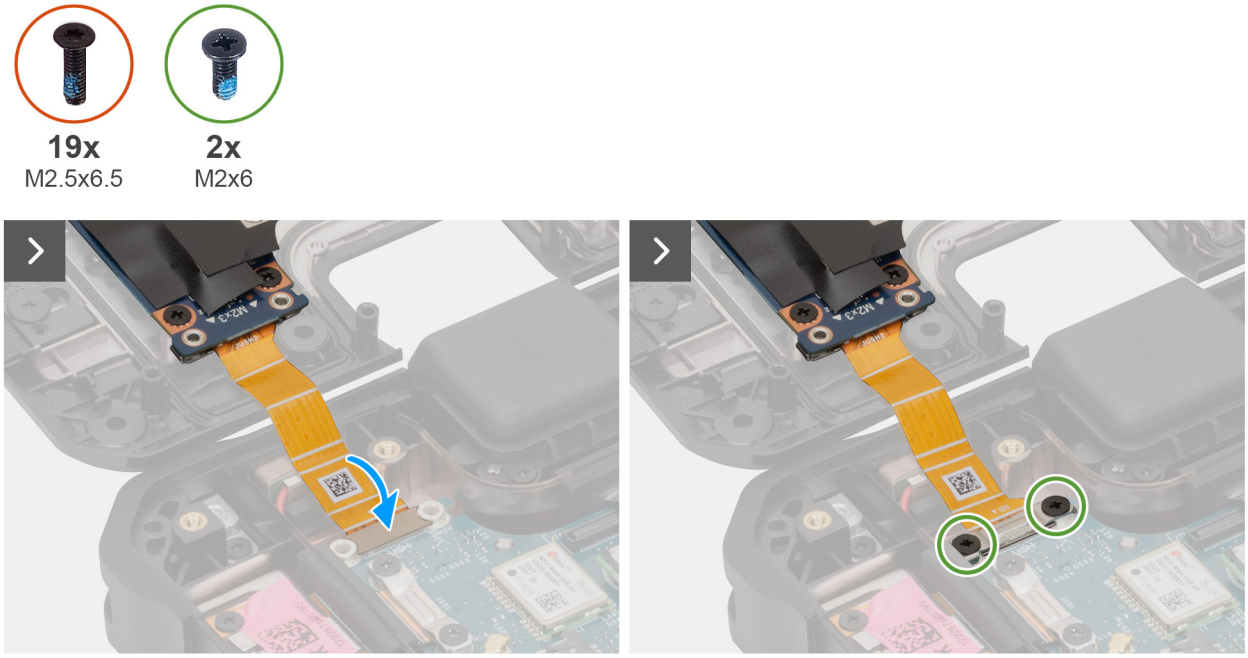

Figure 54. Installing the base-cover assembly

Figure 55. Installing the base-cover assembly

Figure 56. Installing the base-cover assembly

Figure 57. Installing the base-cover assembly

Steps

1. Place the tablet on a flat and clean surface.
2. Connect the power-button daughter-board FPC to the connector on the system board.
3. Replace the two screws (M2x3) to secure the power-button daughter-board FPC to the system board.
4. Carefully close the base-cover assembly to an angle of 45º degrees.
5. Connect the battery cable to the connector on the system board.
6. Place the base-cover assembly and press the edges of the base-cover assembly to secure in to the tablet.
7. Replace the 19 screws (M2.5x6.5) to secure the base-cover assembly in place.

Next steps

1. Install the hot-swappable batteries, if applicable.
2. Install the handle, if applicable.
3. Install the stylus.
4. Follow the procedure in After working inside your tablet.

Battery

Rechargeable Li-ion battery precautions

CAUTION:

- **Exercise caution when handling rechargeable Li-ion batteries.**

- **Discharge the battery completely before removing it. Disconnect the AC power adapter from the computer and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.**
- **Do not crush, drop, mutilate, or penetrate the battery with foreign objects.**
- **Do not expose the battery to high temperatures, or disassemble battery packs and cells.**
- **Do not apply pressure to the surface of the battery.**
- **Do not bend the battery.**
- **Do not use tools of any kind to pry on or against the battery.**
- **Ensure any screws during the servicing of this product are not lost or misplaced, to prevent accidental puncture or damage to the battery and other computer components.**
- **If the battery gets stuck inside your computer as a result of swelling, do not try to release it as puncturing, bending, or crushing a rechargeable Li-ion battery can be dangerous. In such an instance, contact Dell technical support for assistance. See Contact Support at Dell Support Site.**
- **Always purchase genuine batteries from Dell Site or authorized Dell partners and resellers.**
- **Swollen batteries should not be used and should be replaced and disposed properly. For guidelines on how to handle and replace swollen rechargeable Li-ion batteries, see Handling swollen rechargeable Li-ion batteries.**

Removing the internal battery

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

NOTE: This procedure applies only to tablets shipped with an internal battery installed.

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the back-cover assembly.

About this task

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

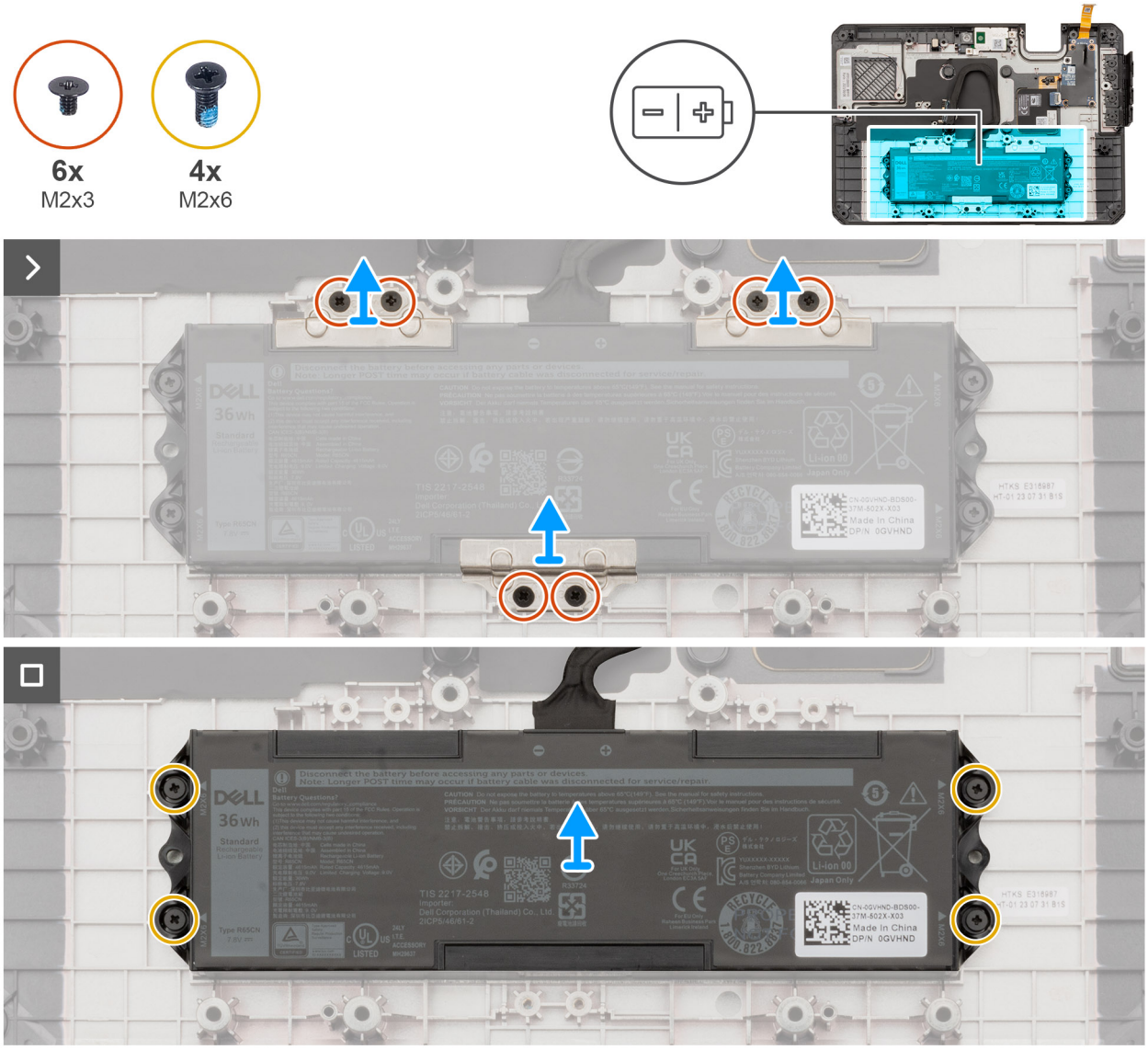

Figure 58. Removing the internal battery

Steps

1. Remove the six screws (M2x3) that secure the three battery-support brackets to the back-cover assembly.
2. Lift the three battery-support brackets off the back-cover assembly.
3. Remove the four screws (M2x6) that secure the internal battery to the back-cover assembly.
4. Lift the internal battery, along with the battery cable, off the back-cover assembly.

Installing the internal battery

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

NOTE: This procedure applies only to tablets shipped with an internal battery installed.

Prerequisites

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

About this task

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

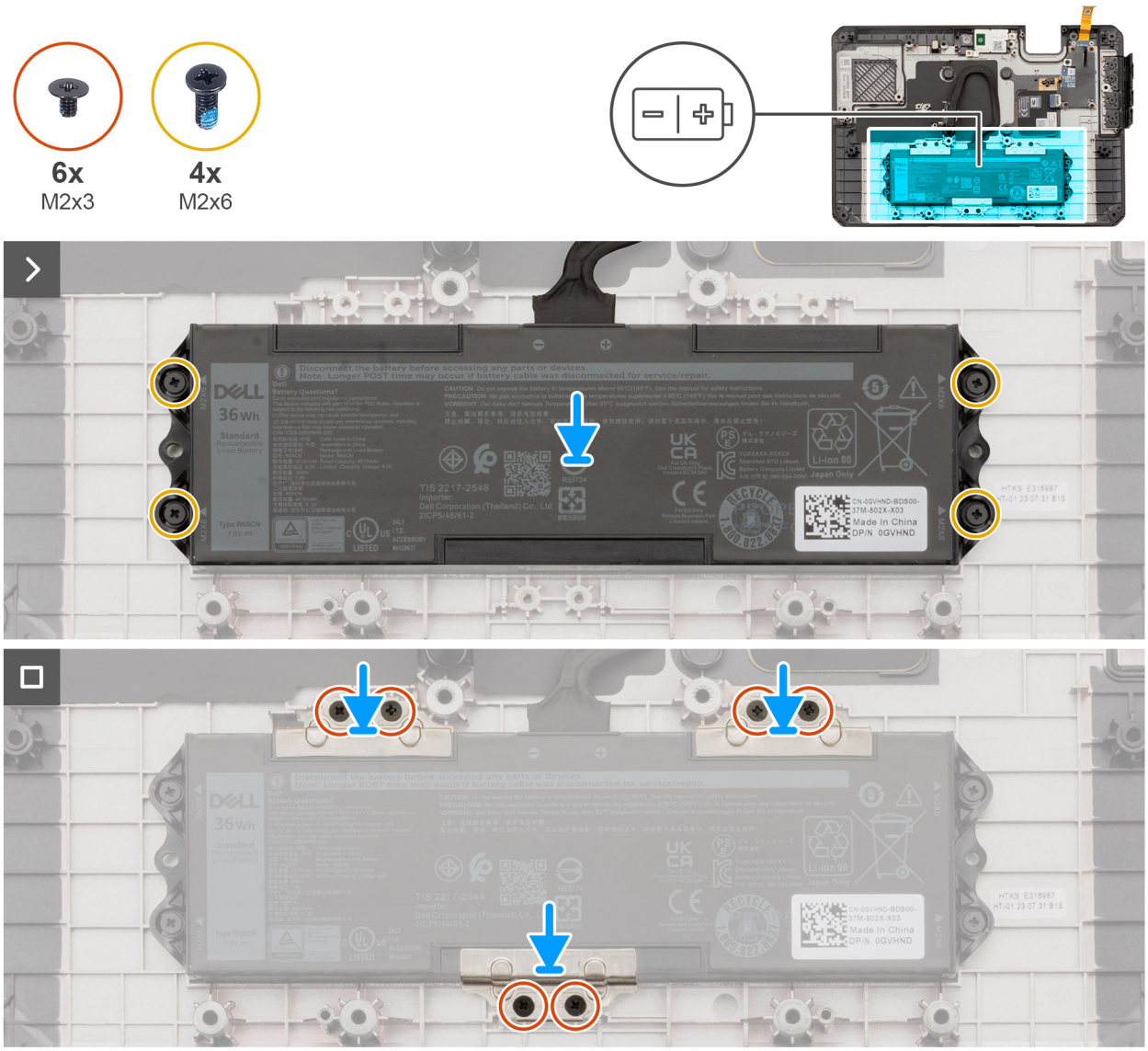

Figure 59. Installing the internal battery

Steps

1. Place the internal battery, along with the battery cable, in the slot on the back-cover assembly.
2. Align the screw holes on the internal battery to the screw holes on the base-cover assembly.
3. Replace the four screws (M2x6) to secure the internal battery to the base-cover assembly.
4. Place the three battery-support brackets in the slot on the back-cover assembly.
5. Align the screw holes on the battery-support brackets with the screw holes on the base-cover assembly.
6. Replace the six screws (M2x3) to secure the bracket-support brackets to the base-cover assembly.

Next steps

1. Install the back-cover assembly.
2. Install the handle, if applicable.
3. Install the stylus.
4. Follow the procedure in After working inside your tablet.

I/O daughter-board

Removing the I/O daughter-board

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

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.

About this task

The following images indicate the location of the I/O daughter-board and provide a visual representation of the removal procedure.

NOTE: The USB 3.2 Gen 1 port with PowerShare and microSD-card slot is part of the I/O daughter-board.

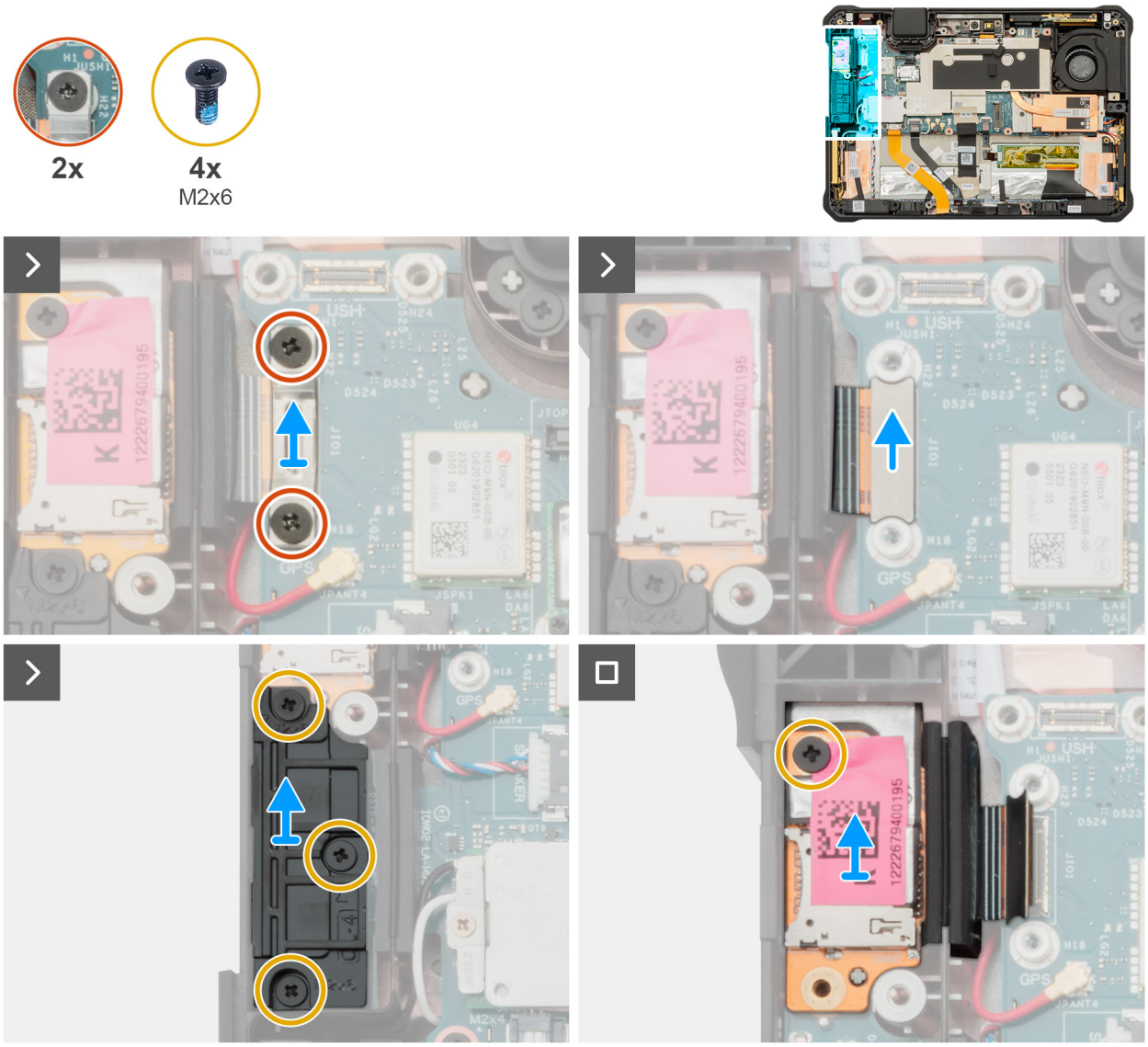

Figure 60. Removing the I/O daughter-board

Steps

1. Loosen the two captive screws that secure the I/O daughter-board FPC bracket to the system board.
2. Lift the I/O daughter-board FPC bracket off the system board.
3. Disconnect the I/O daughter-board FPC from the connector on the system board.
4. Remove the three screws (M2x6) that secure the USB Type-C bracket to the system board.
5. Remove the USB Type-C bracket from the system board.
6. Remove the screw (M2x6) that secures the I/O daughter-board to the display assembly.
7. Carefully remove the I/O daughter-board from the display assembly.

NOTE: Technicians must carefully pull the rubber stopper out of the slot to avoid damage to the I/O daughter-board FPC when removing the I/O daughter-board from the display assembly.

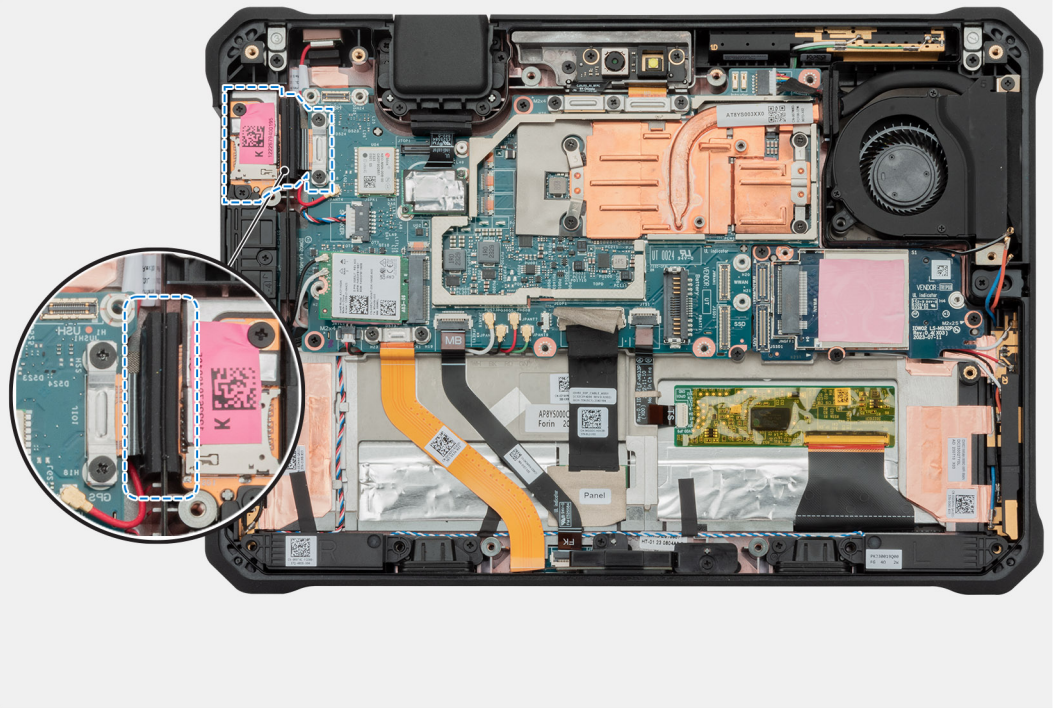

Figure 61. Removing the I/O daughter-board

Installing the I/O daughter-board

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

Prerequisites

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

About this task

The following images indicate the location of the I/O daughter-board and provide a visual representation of the installation procedure.

NOTE: The USB 3.2 Gen 1 port with PowerShare and microSD-card slot is part of the I/O daughter-board.

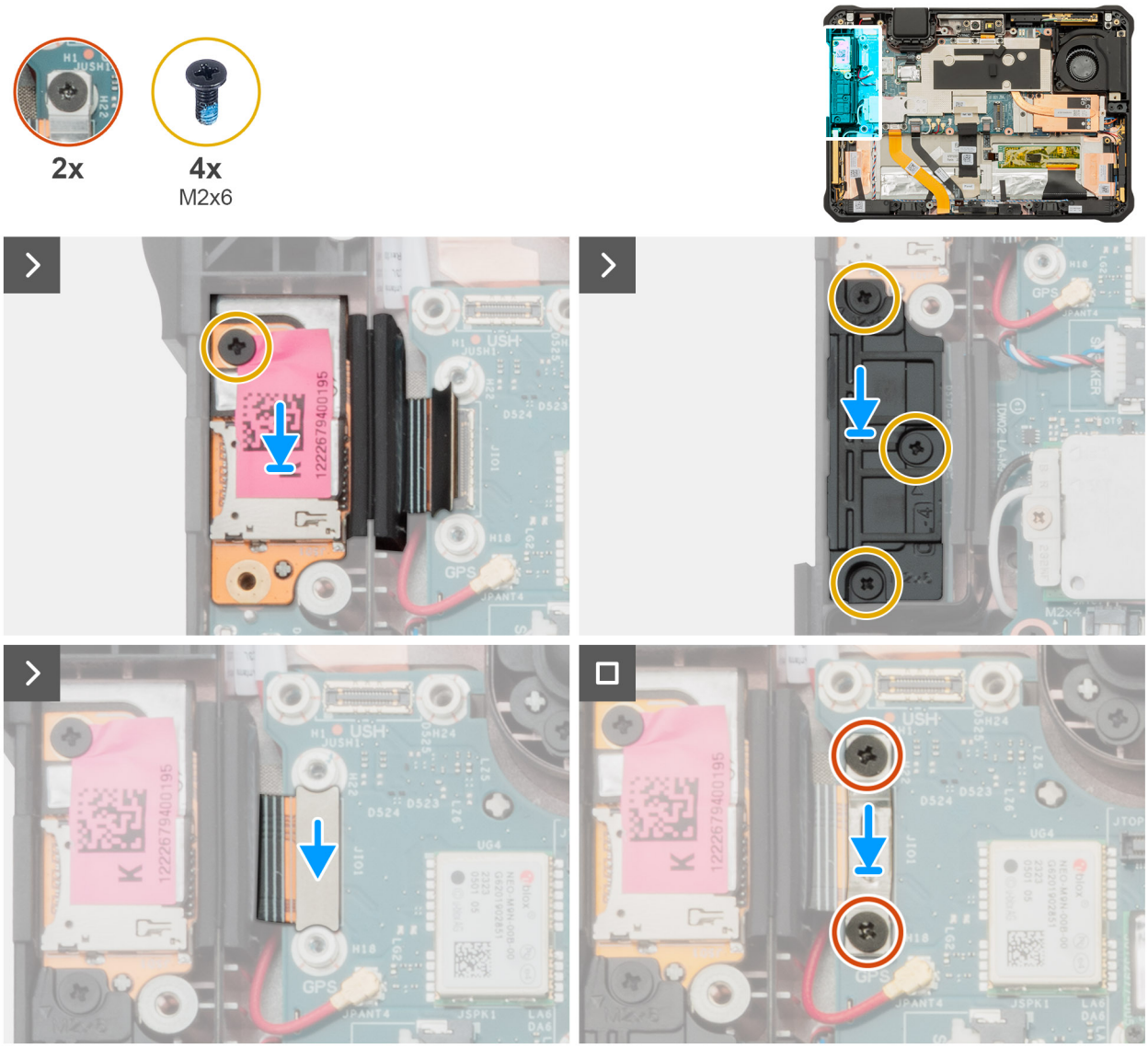

Figure 62. Installing the I/O daughter-board

Steps

1. Align the screw holes on the I/O daughter-board with the screw holes on the display assembly.
2. Replace the screw (M2x6) to secure the I/O daughter-board to the display assembly.
3. Align the screw holes on the USB Type-C bracket to the system board.
4. Replace the three screws (M2x6) to secure the USB Type-C bracket to the system board.
5. Connect the I/O daughter-board FPC to the connector on the system board.
6. Align and place the I/O daughter-board FPC bracket on the FPC connector.
7. Tighten the two captive screws to secure the I/O daughter-board FPC bracket to the system board.

Next steps

1. Install the back-cover assembly.
2. Install the hot-swappable batteries, if applicable.
3. Install the handle, if applicable.
4. Install the stylus.
5. Follow the procedure in After working inside your tablet.

Wireless card

Removing the wireless card

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

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.

About this task

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

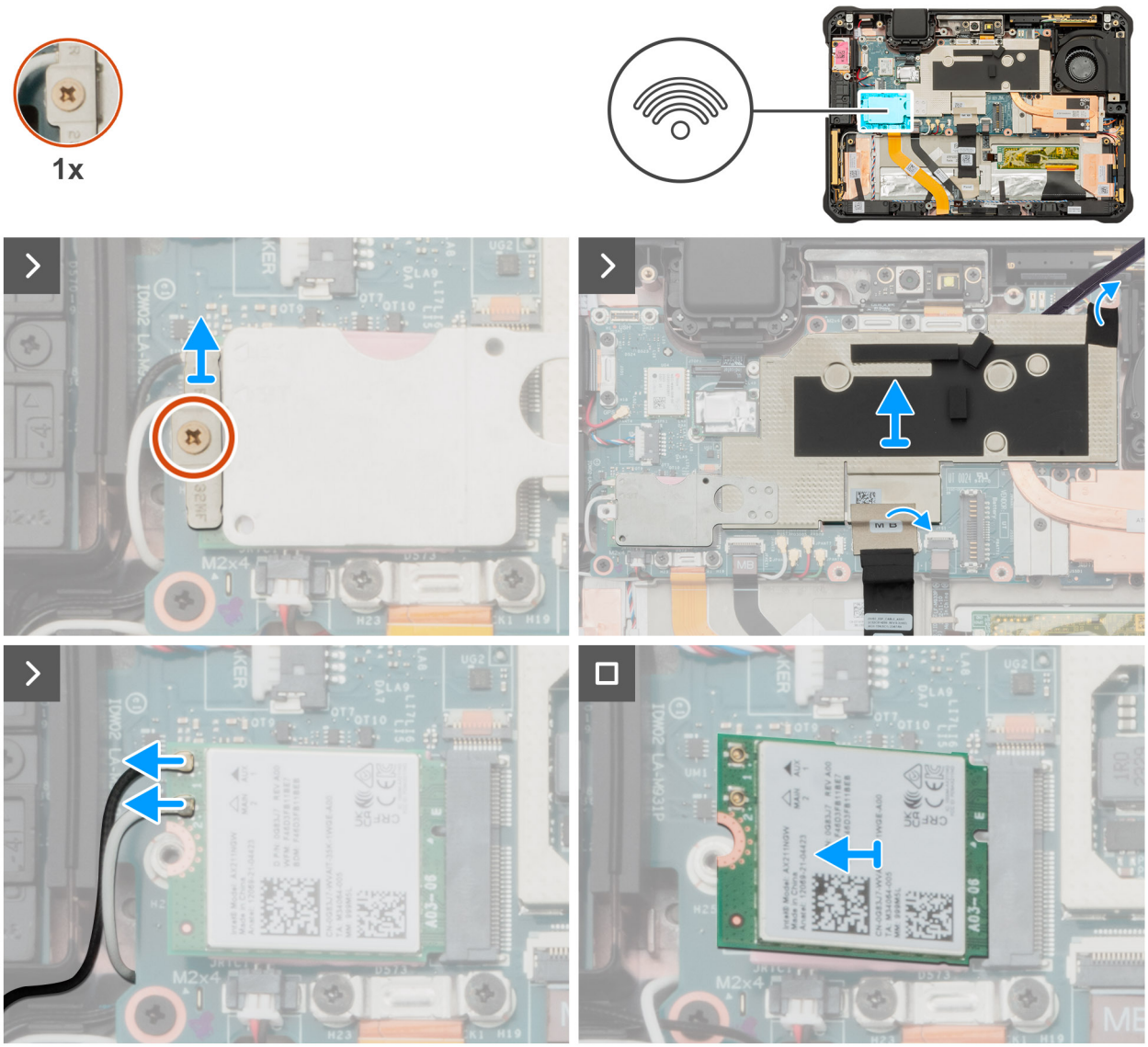

Figure 63. Removing the wireless card

Steps

1. Loosen the captive screw that secures the wireless-card bracket to the wireless card.
2. Lift the wireless-card bracket off the wireless card.
3. Peel back the tape that secures the fan cable to the system-board shielding cover.
4. Peel back the tape that secures the display cable to the system-board shielding cover.
5. Using a plastic scribe, release the system-board shielding cover starting from the release point near the fan-cable connector, on the top side of the tablet. Continue working along the bottom side of the system-board shielding cover.

   NOTE: The wireless-card thermal plate is permanently attached to the system-board shielding cover. Any replacement of the wireless card requires removal of the system-board shielding cover along with the wireless-card thermal plate.

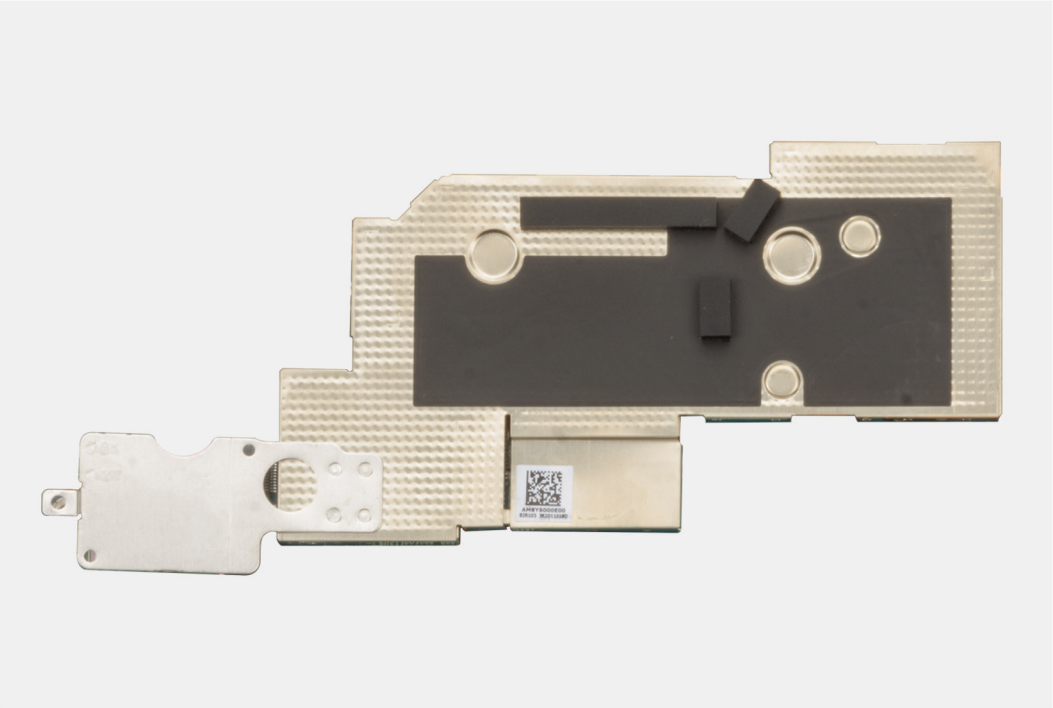

Figure 64. Removing the wireless card

6. Carefully lift the system-board shielding cover, along with wireless-card thermal plate, off the display assembly.
7. Disconnect the wireless-antenna cables from the connectors on the wireless card.
8. Slide and remove the wireless card from the wireless-card slot on the system board.

Installing the wireless card

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

Prerequisites

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

About this task

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

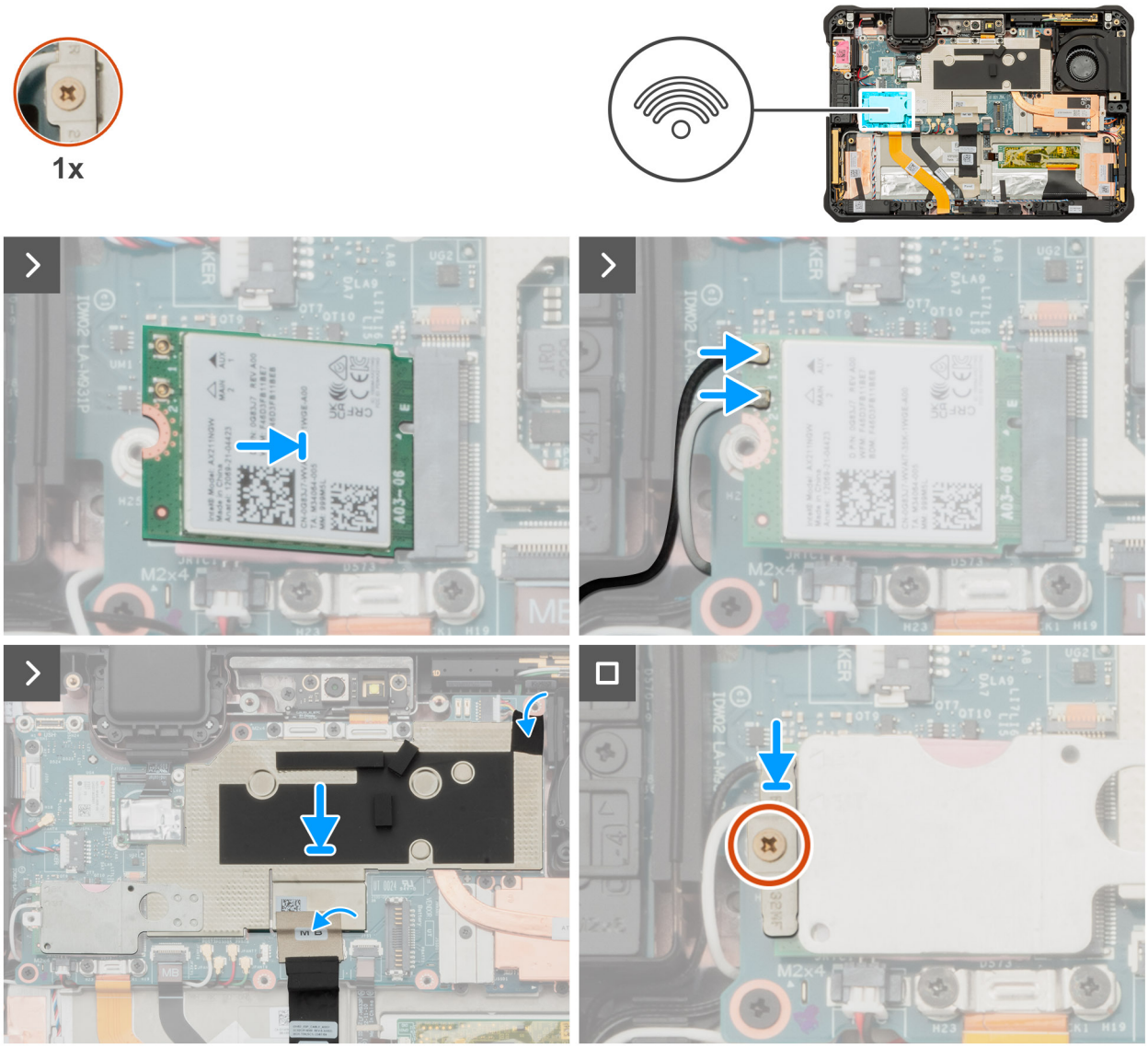

Figure 65. Installing the wireless card

Steps

1. Align the notch on the wireless card with the tab on the wireless-card slot.
2. Connect the antenna cables to the wireless card.

Table 34. Antenna-cable color scheme

Antenna	Cable Color
WLAN Auxiliary	Black
WLAN Main	White

3. Align and place the system-board shielding cover, along with wireless-card thermal plate on the system board and continue working along the bottom side of the system-board shielding cover until it clicks in place.

   NOTE: The wireless-card thermal plate is permanently attached to the system-board shielding cover. Any replacement of the wireless card requires removal of the system-board shielding cover along with the wireless-card thermal plate.

4. Adhere the tape to secure the display cable to the system-board shielding cover.
5. Adhere the tape to secure the fan cable to the system-board shielding cover.
6. Align and place the wireless-card bracket on the system board.

7. Tighten the captive screw to secure the wireless-card bracket to the wireless card.

Next steps

1. Install the back-cover assembly.
2. Install the hot-swappable batteries, if applicable.
3. Install the handle, if applicable.
4. Install the stylus.
5. Follow the procedure in After working inside your tablet.

World-facing camera

Removing the world-facing camera

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

NOTE: This procedure applies only to tablets shipped with a world-facing camera installed.

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.

About this task

The following images indicate the location of the world-facing camera and provide a visual representation of the removal procedure.

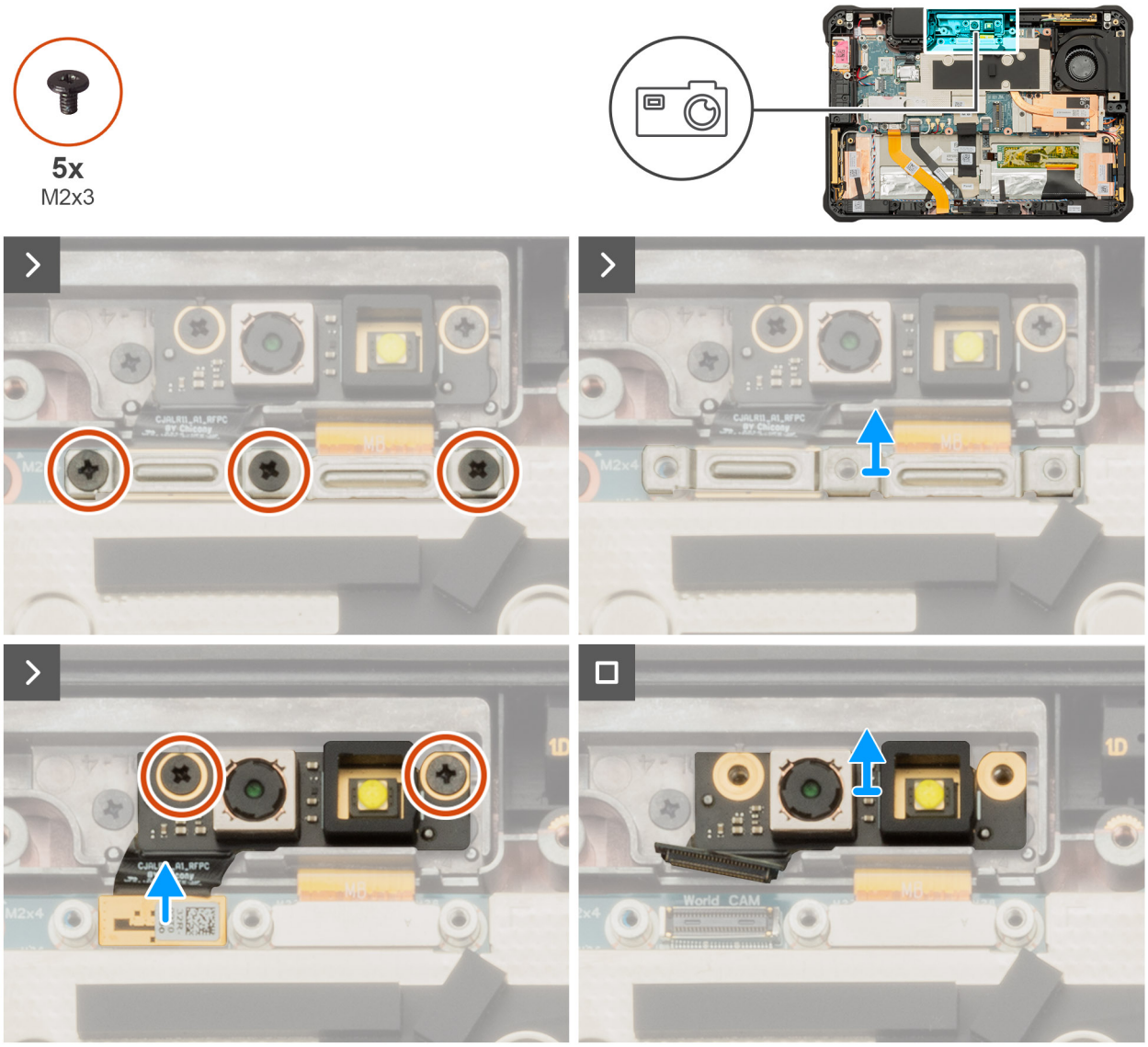

Figure 66. Removing the world-facing camera

Steps

1. Remove the three screws (M2x3) that secure the camera-connector bracket to the system board.
2. Lift the camera-connector bracket off the system board.
3. Using a plastic scribe, disconnect the world-facing camera FPC from the connector on the system board.
4. Remove the two screws (M2x3) that secure the world-facing camera to the front camera and microphone assembly.
5. Remove the world-facing camera from the front camera and microphone assembly.

Installing the world-facing camera

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

NOTE: This procedure applies only to tablets shipped with a world-facing camera installed.

Prerequisites

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

About this task

The following images indicate the location of the world-facing camera and provide a visual representation of the installation procedure.

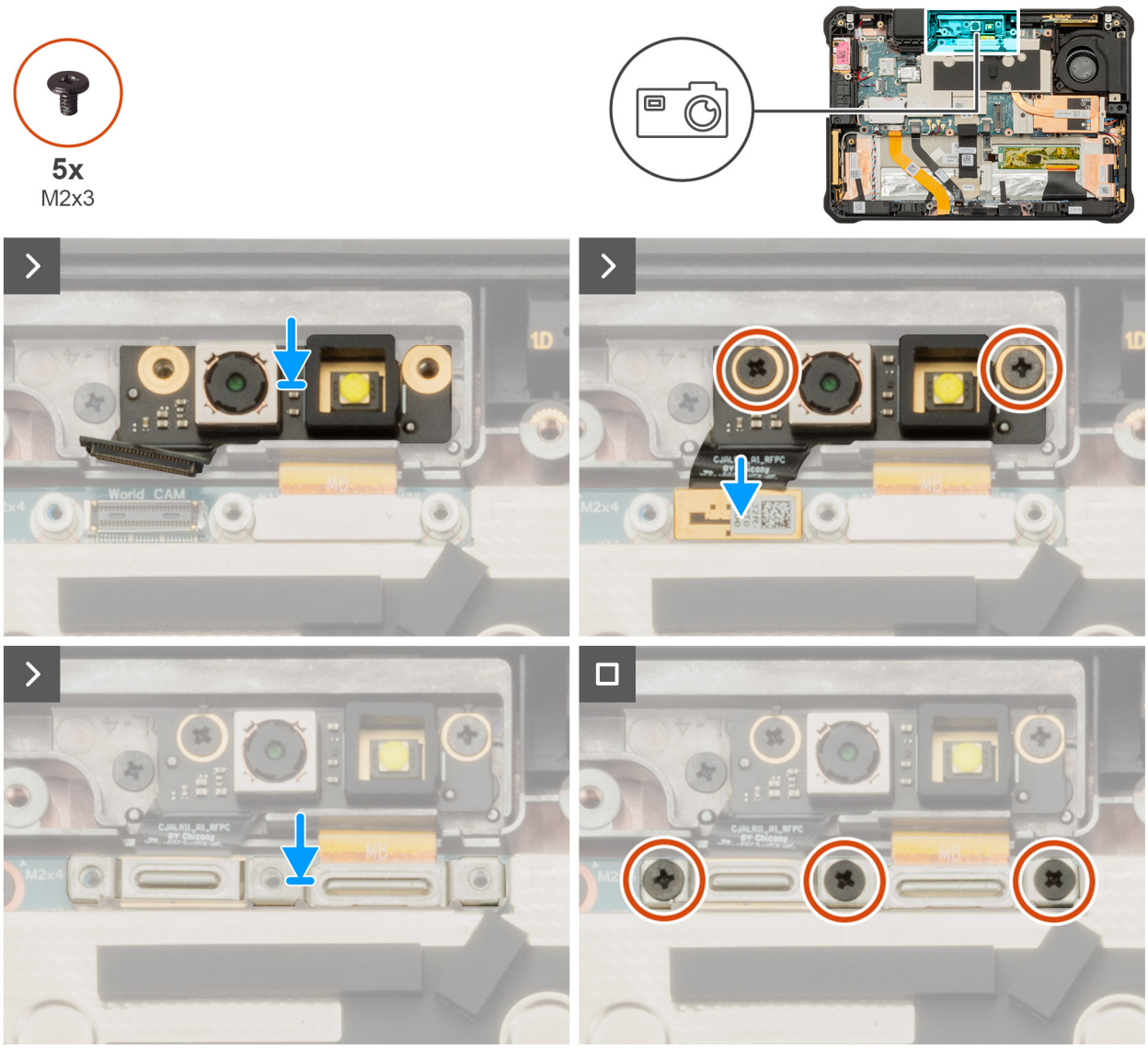

Figure 67. Installing the world-facing camera

Steps

1. Align the screw holes on the world-facing camera with the screw holes on the front camera and microphone assembly.
2. Replace the two screws (M2x3) to secure the world-facing camera to the front camera and microphone assembly.
3. Connect the world-facing camera FPC to the connector on the system board.
4. Align the screw holes on the camera-connector bracket with the screw holes on the system board.
5. Replace the three screws (M2x3) to secure the camera-connector bracket to the system board.

Next steps

1. Install the back-cover assembly.
2. Install the hot-swappable batteries, if applicable.
3. Install the handle, if applicable.
4. Install the stylus.
5. Follow the procedure in After working inside your tablet.

Front camera and microphone assembly

Removing the front camera and microphone assembly

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

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.
6. Remove the world-facing camera, if applicable.

About this task

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

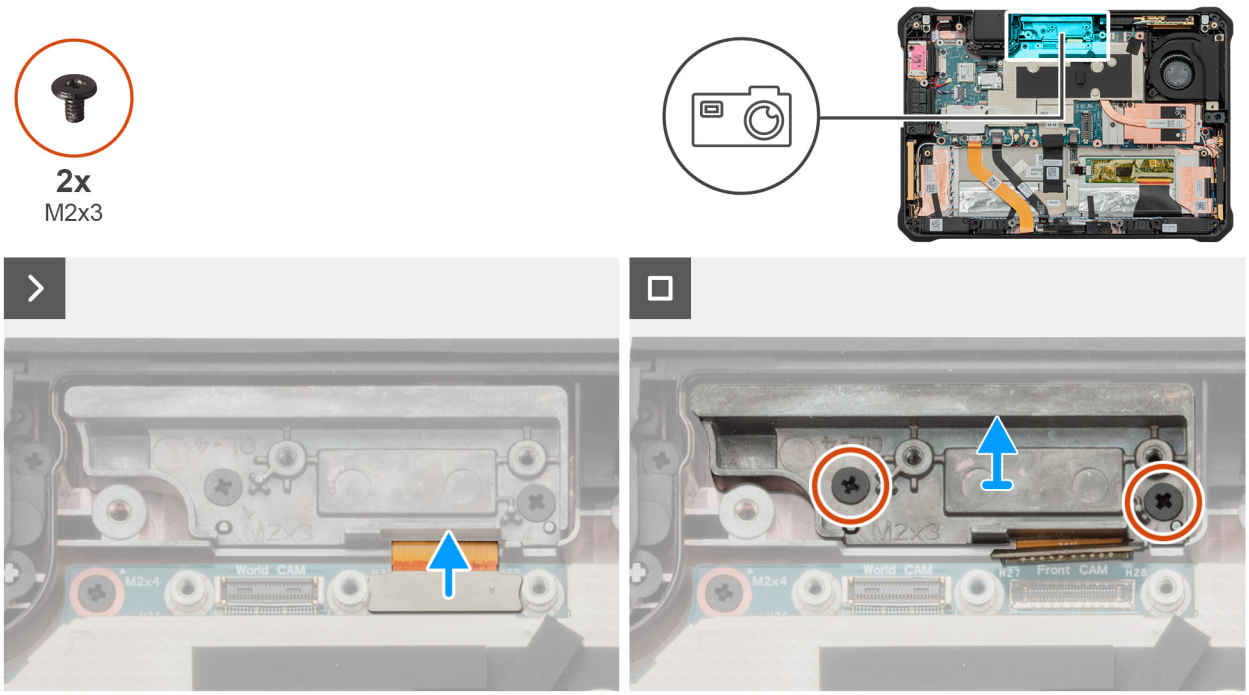

Figure 68. Removing the front camera and microphone assembly

Steps

NOTE: Latitude 7030 Rugged Extreme Tablet features three configurations for the front camera and microphone assembly:

a. Front camera and microphone assembly
b. Microphone and bracket (without front camera)
c. Bracket only (without front camera and microphone)

NOTE: If any component in the front camera and microphone assembly is faulty, replace the entire assembly.

1. Using a plastic scribe, disconnect the front-camera FPC or microphone FPC from the connector on the system board.

   NOTE: This step applies only to configurations a and b listed above.

2. Remove the two screws (M2x3) that secure the front camera and microphone assembly to the display assembly.
3. Remove the front camera and microphone assembly from the display assembly.

Installing the front camera and microphone assembly

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

Prerequisites

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

About this task

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

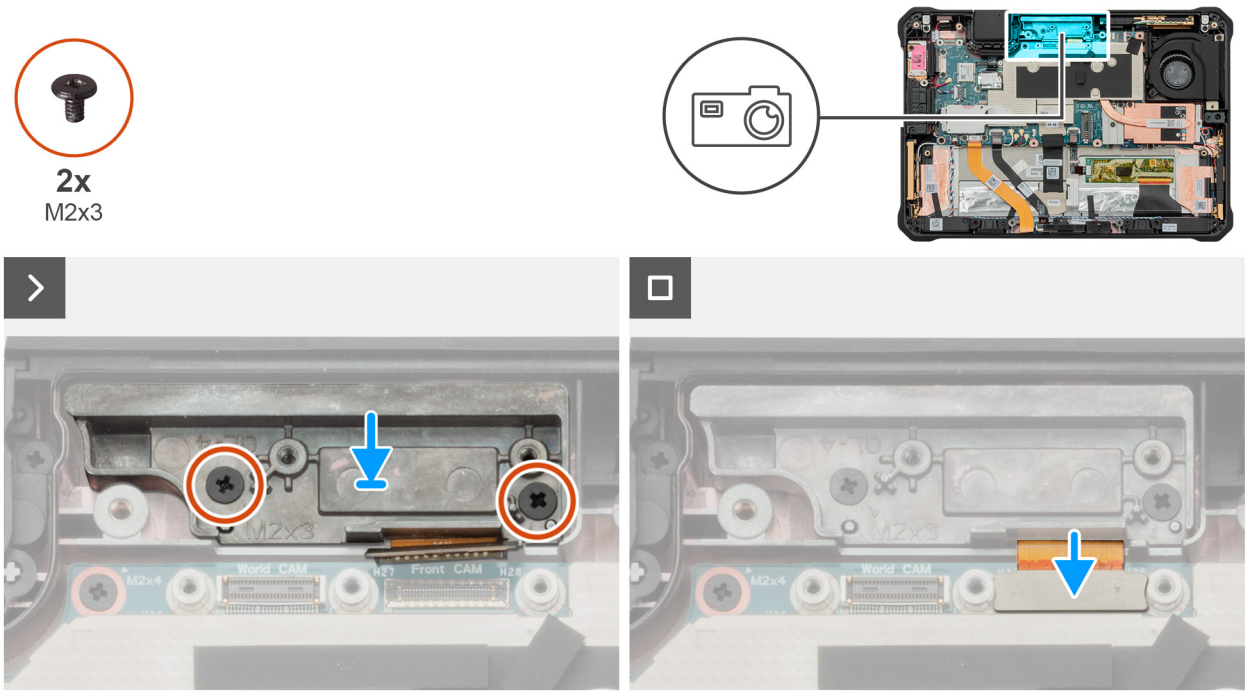

Figure 69. Installing the front camera and microphone assembly

Steps

NOTE: Latitude 7030 Rugged Extreme Tablet features three configurations for the front camera and microphone assembly:

a. Front camera and microphone assembly
b. Microphone and bracket (without front camera)
c. Bracket only (without front camera and microphone)

NOTE: If any component in the front camera and microphone assembly is faulty, replace the entire assembly.

1. Align the screw holes on the front camera and microphone assembly with the screw holes on the display assembly.
2. Replace the two screws (M2x3) to secure the front camera and microphone assembly to the display assembly.
3. Connect the front-camera FPC or microphone FPC to the connector on the system board.

   NOTE: This step applies only to configurations a and b listed above.

Blank top-cover

Removing the blank top-cover

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

NOTE: This procedure applies only to tablets shipped with an empty expansion bay at the top side of the tablet.

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.

About this task

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

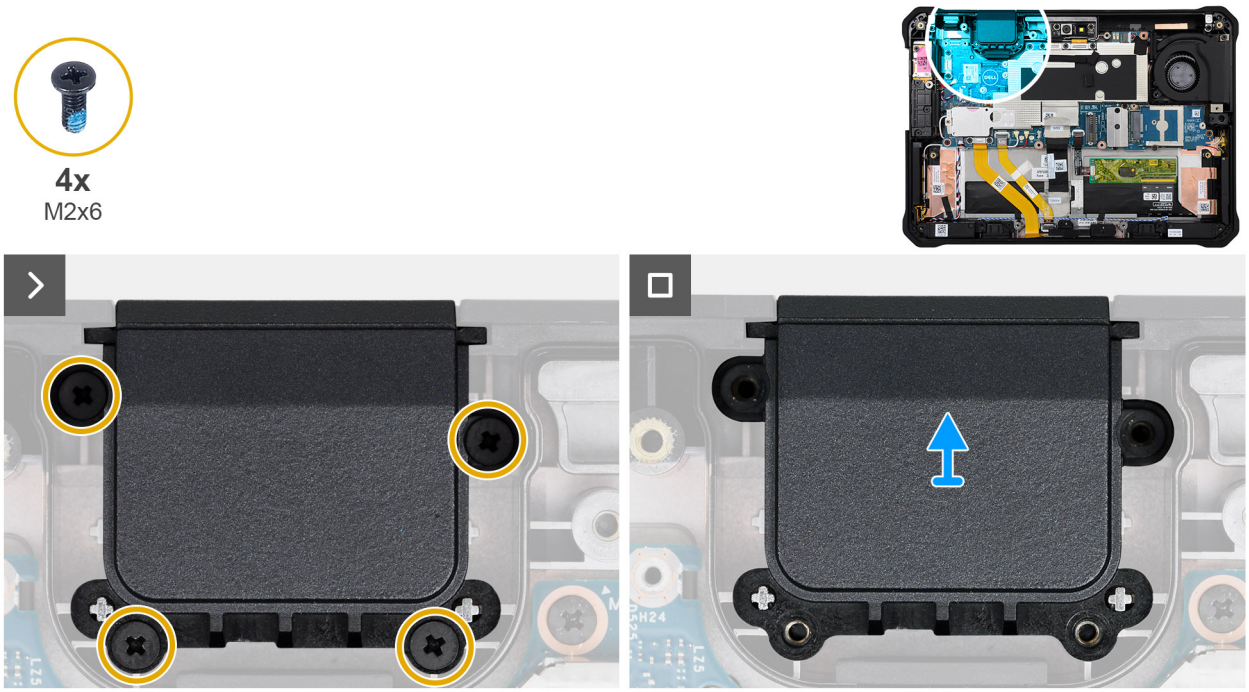

Figure 70. Removing the blank top-cover

Steps

1. Remove the four screws (M2x6) that secure the blank top-cover to the display assembly.
2. Remove the blank top-cover from the display assembly.

Installing the blank top-cover

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

NOTE: This procedure applies only to tablets shipped with an empty expansion bay at the top side of the tablet.

Prerequisites

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

About this task

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

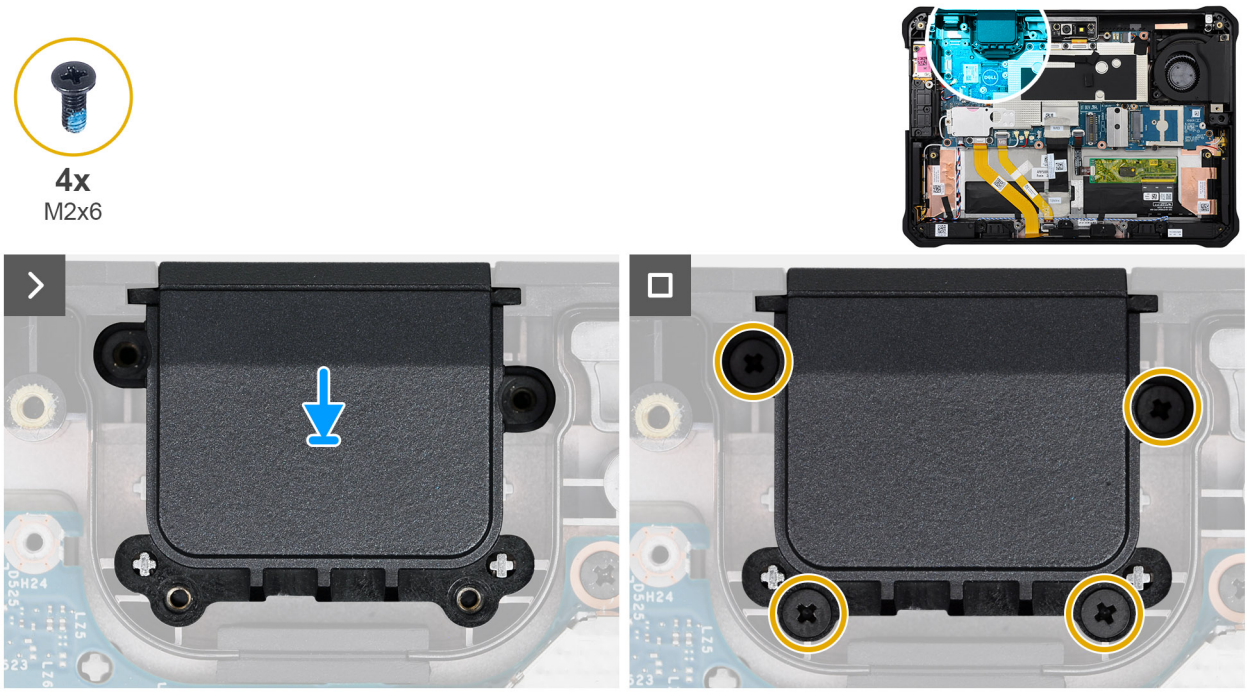

Figure 71. Installing the blank top-cover

Steps

1. Align the screw holes on the blank top-cover with the screw holes on the display assembly.
2. Replace the four screws (M2x6) to secure the blank top-cover to the display assembly.

Next steps

1. Install the back-cover assembly.
2. Install the hot-swappable batteries, if applicable.
3. Install the handle, if applicable.
4. Install the stylus.
5. Follow the procedure in After working inside your tablet.

RJ45-port assembly

Removing the RJ45-port assembly

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

NOTE: This procedure applies only to tablets shipped with an RJ45 connector installed in the expansion bay at the top side of the tablet.

Prerequisites

1. Follow the procedure in Before working inside your tablet.

2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.

About this task

The following images indicate the location of the RJ45-port assembly and provide a visual representation of the removal procedure.

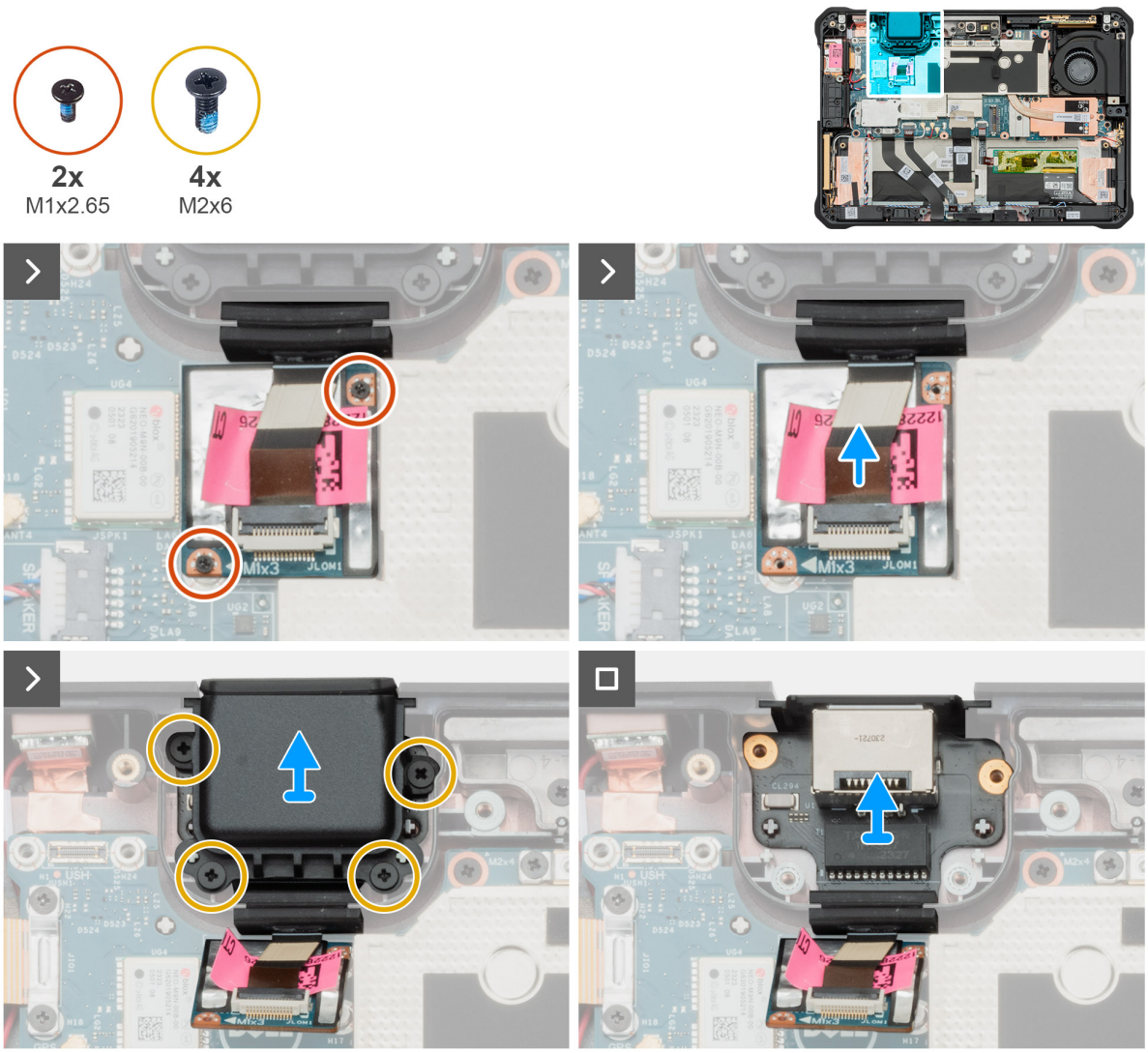

Figure 72. Removing the RJ45-port assembly

Steps

1. Remove the two screws (M1x2.65) that secure the RJ45-port daughter-board to the system board.
2. Using a plastic scribe, disconnect the RJ45-port daughter-board from the connector on the system board.
3. Remove the four screws (M2x6) that secure the RJ45-port cover to the RJ45-port assembly.
4. Remove the RJ45-port cover from the display assembly.
5. Carefully remove the RJ45-port assembly from the display assembly.

NOTE: Technicians must carefully pull the rubber stopper out of the slot to avoid damage to the RJ45-port assembly FPC when removing the RJ45-port assembly from the display assembly.

Installing the RJ45-port assembly

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

NOTE: This procedure applies only to tablets shipped with an RJ45 connector installed in the expansion bay at the top side of the tablet.

Prerequisites

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

About this task

The following images indicate the location of the RJ45-port assembly and provide a visual representation of the installation procedure.

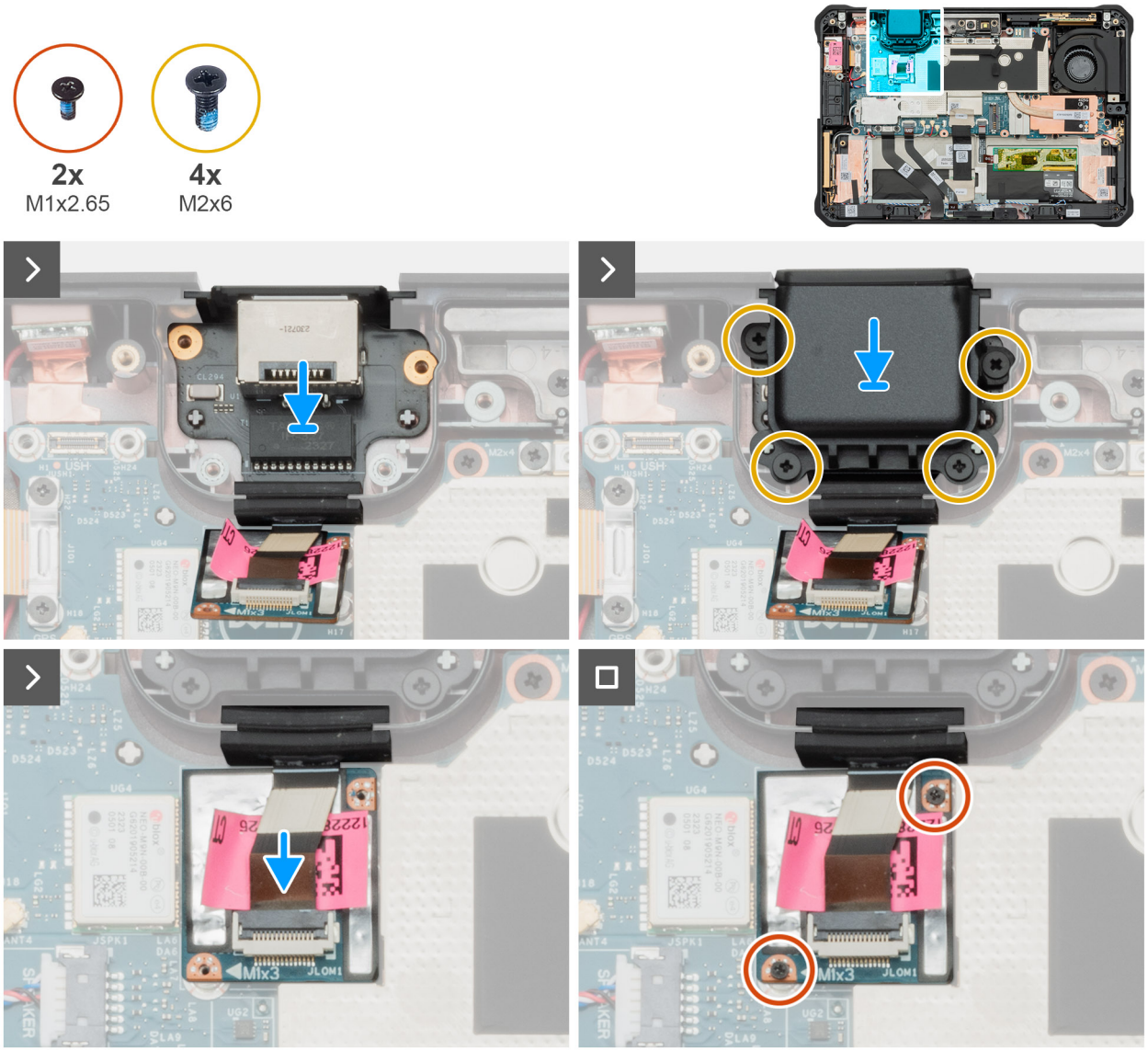

Figure 73. Installing the RJ45-port assembly

Steps

1. Align and place the RJ45-port assembly on the display assembly.
2. Align the screw holes on the RJ45-port cover with the screw holes on the RJ45-port assembly.
3. Replace the four screws (M2x6) to secure the RJ45-port cover to the RJ45-port assembly.

4. Connect the RJ45-port daughter-board to the connector on the system board.
5. Replace the two screws (M1x2.65) to secure the RJ45-port daughter-board to the system board.

Next steps

1. Install the back-cover assembly.
2. Install the hot-swappable batteries, if applicable.
3. Install the handle, if applicable.
4. Install the stylus.
5. Follow the procedure in After working inside your tablet.

USB-port assembly

Removing the USB-port assembly

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

NOTE: This procedure applies only to tablets shipped with a USB connector installed in the expansion bay at the top side of the tablet.

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.

About this task

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

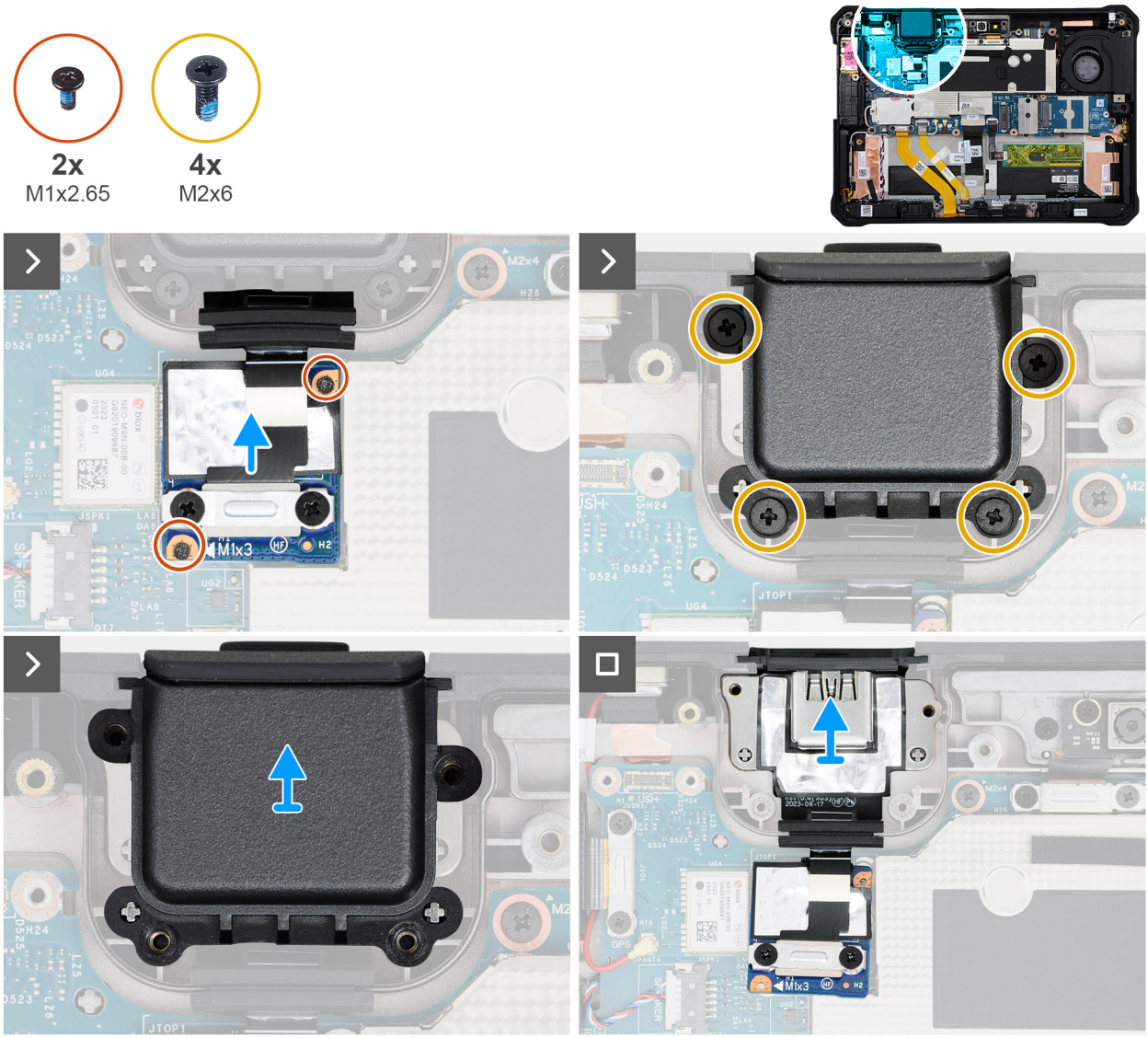

Figure 74. Removing the USB-port assembly

Steps

1. Remove the two screws (M1x2.65) that secure the USB-port daughter-board to the system board.
2. Using a plastic scribe, disconnect the USB-port daughter-board from the connector on the system board.
3. Remove the four screws (M2x6) that secure the USB-port cover to the USB-port assembly.
4. Remove the USB-port cover from the display assembly.
5. Carefully remove the USB-port assembly from the display assembly.

   NOTE: Technicians must carefully pull the rubber stopper out of the slot to avoid damage to the USB-port assembly FPC when removing the USB-port assembly from the display assembly.

Installing the USB-port assembly

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

NOTE: This procedure applies only to tablets shipped with a USB connector installed in the expansion bay at the top side of the tablet.

Prerequisites

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

About this task

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

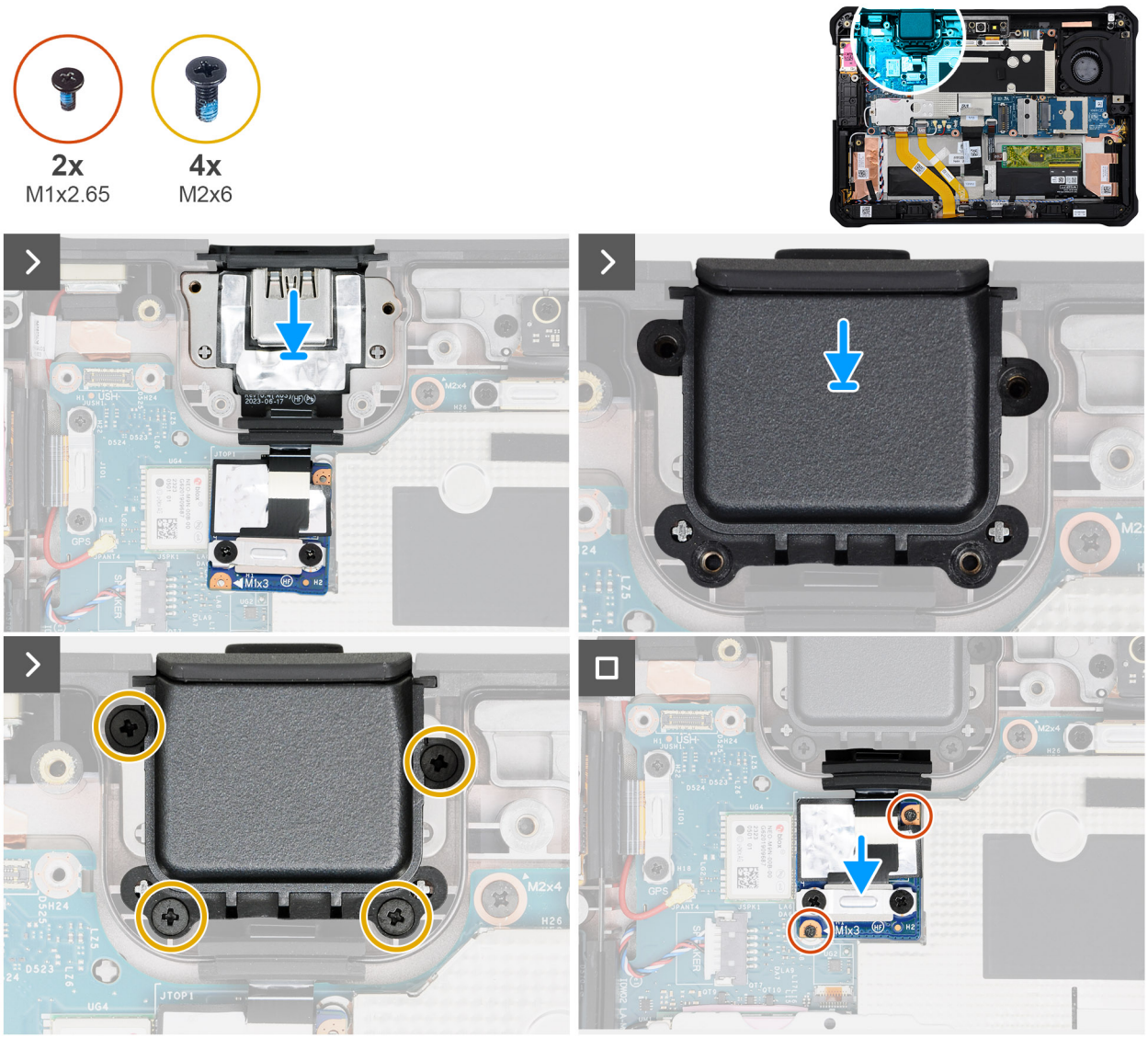

Figure 75. Installing the USB-port assembly

Steps

1. Align and place the USB-port assembly on the display assembly.
2. Align the screw holes on the USB-port cover with the screw holes on the USB-port assembly.
3. Replace the four screws (M2x6) to secure the USB-port cover to the USB-port assembly.
4. Connect the USB-port daughter-board to the connector on the system board.
5. Replace the two screws (M1x2.65) to secure the USB-port daughter-board to the system board.

Next steps

1. Install the back-cover assembly.
2. Install the hot-swappable batteries, if applicable.
3. Install the handle, if applicable.

4. Install the stylus.
5. Follow the procedure in After working inside your tablet.

Audio-jack assembly

Removing the audio-jack assembly

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

NOTE: This procedure applies only to tablets shipped with an audio-jack connector installed in the expansion bay at the top side of the tablet.

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.

About this task

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

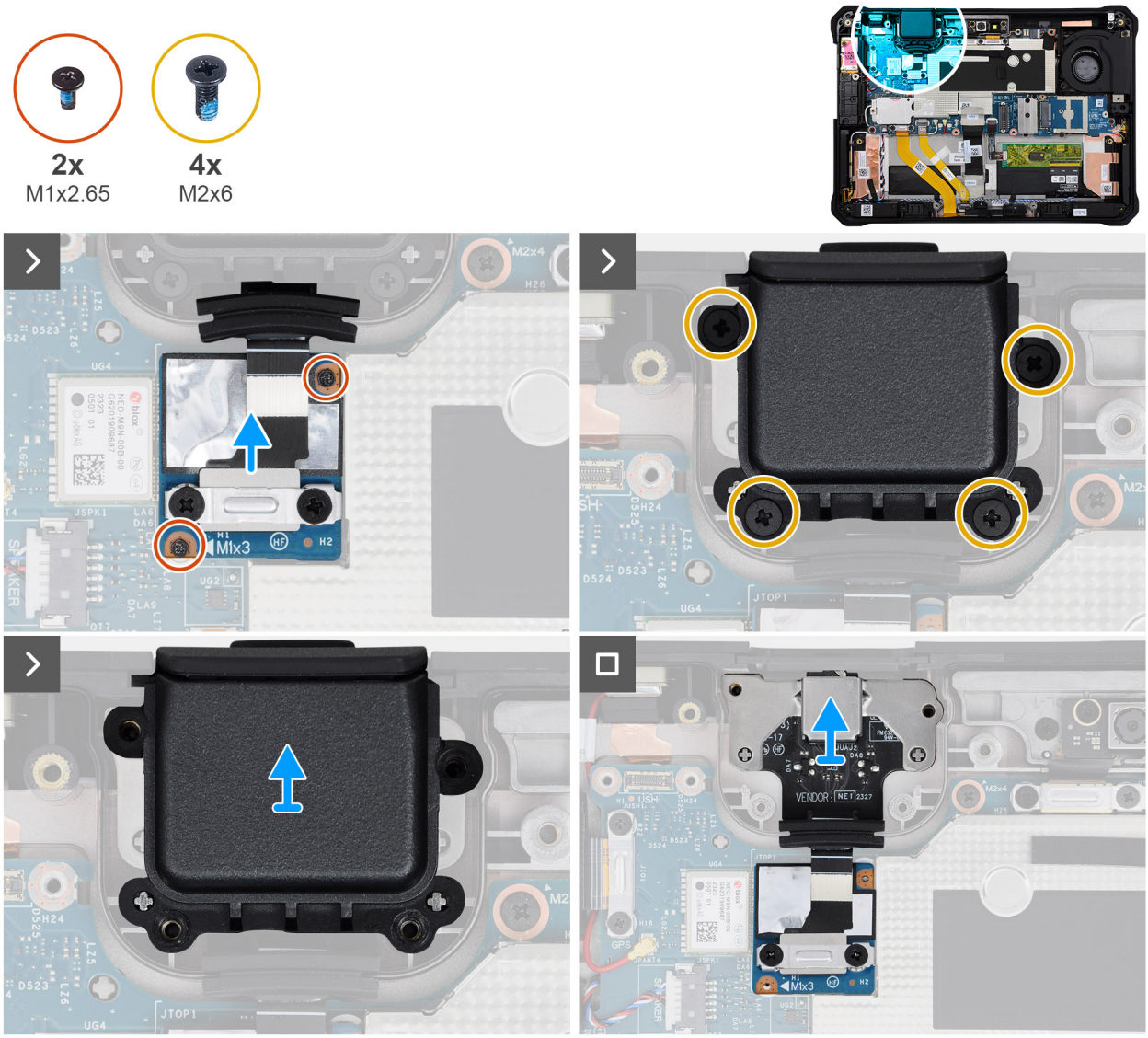

Figure 76. Removing the audio-jack assembly

Steps

1. Remove the two screws (M1x2.65) that secure the audio-jack daughter-board to the system board.
2. Using a plastic scribe, disconnect the audio-jack daughter-board from the connector on the system board.
3. Remove the four screws (M2x6) that secure the audio-jack cover to the audio-jack assembly.
4. Remove the audio-jack cover from the display assembly.
5. Carefully remove the audio-jack assembly from the display assembly.

NOTE: Technicians must carefully pull the rubber stopper out of the slot to avoid damage to the audio-jack assembly FPC when removing the audio-jack assembly from the display assembly.

Installing the audio-jack assembly

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

NOTE: This procedure applies only to tablets shipped with an audio-jack connector installed in the expansion bay at the top side of the tablet.

Prerequisites

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

About this task

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

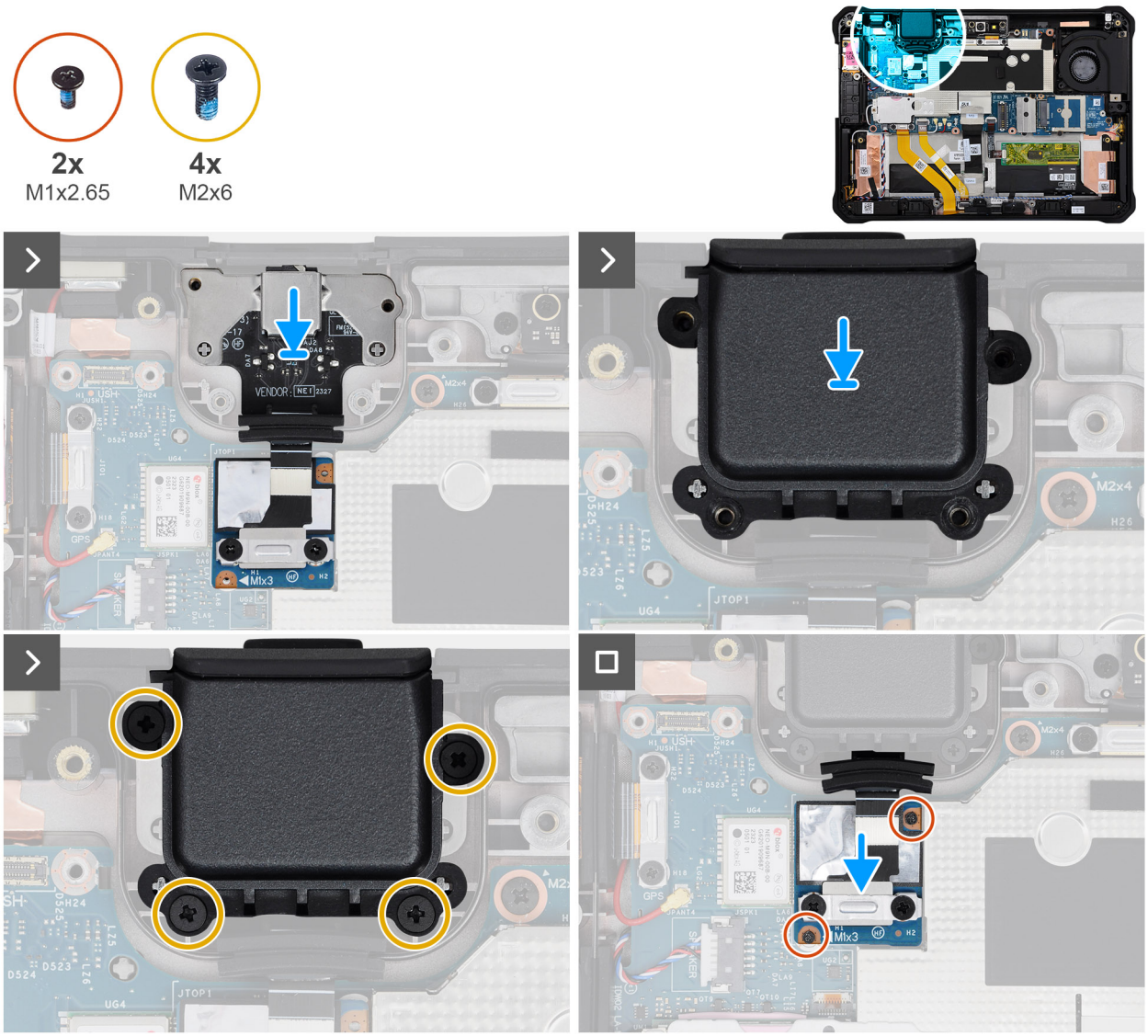

Figure 77. Installing the audio-jack assembly

Steps

1. Align and place the audio-jack assembly on the display assembly.

   NOTE: Angle the audio-jack assembly downward at 45° towards the audio-jack bezel.

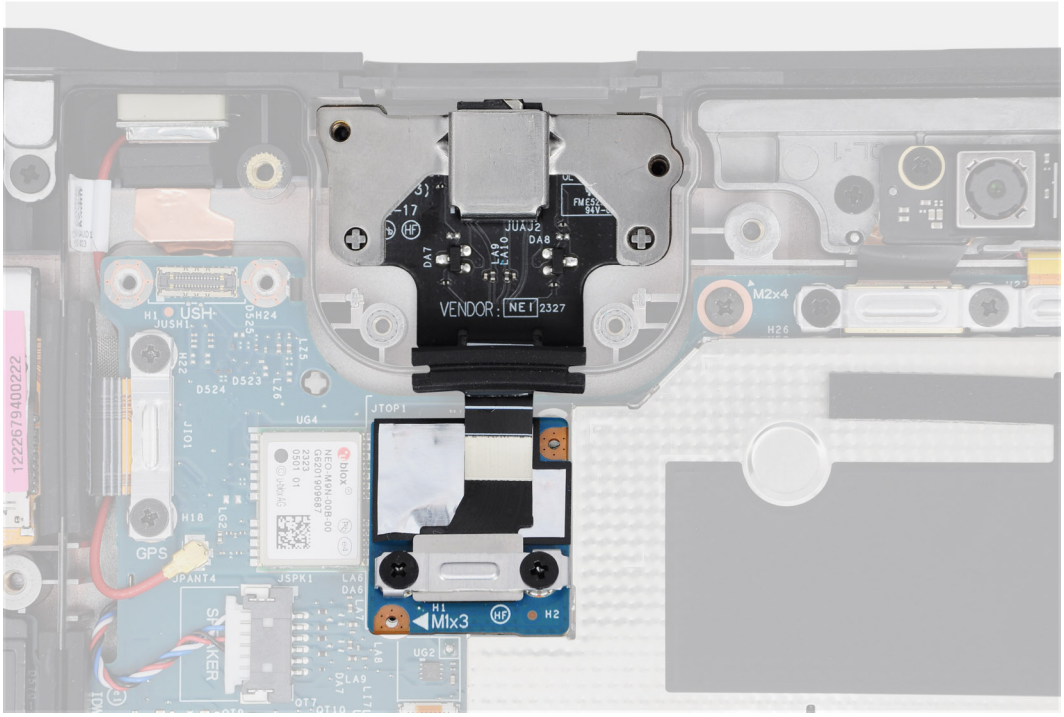

Figure 78. Installing the audio-jack assembly

2. Align the screw holes on the audio-jack cover with the screw holes on the audio-jack assembly.
3. Replace the four screws (M2x6) to secure the audio-jack cover to the audio-jack assembly.
4. Connect the audio-jack daughter-board to the connector on the system board.
5. Replace the two screws (M1x2.65) to secure the audio-jack daughter-board to the system board.

Next steps

1. Install the back-cover assembly.
2. Install the hot-swappable batteries, if applicable.
3. Install the handle, if applicable.
4. Install the stylus.
5. Follow the procedure in After working inside your tablet.

Scanner assembly

Removing the 1D-2D barcode-scanner assembly

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

NOTE: This procedure applies only to tablets shipped with a 1D-2D barcode-scanner installed in the expansion bay at the top side of the tablet.

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.

About this task

The following images indicate the location of the 1D-2D barcode-scanner assembly and provide a visual representation of the removal procedure.

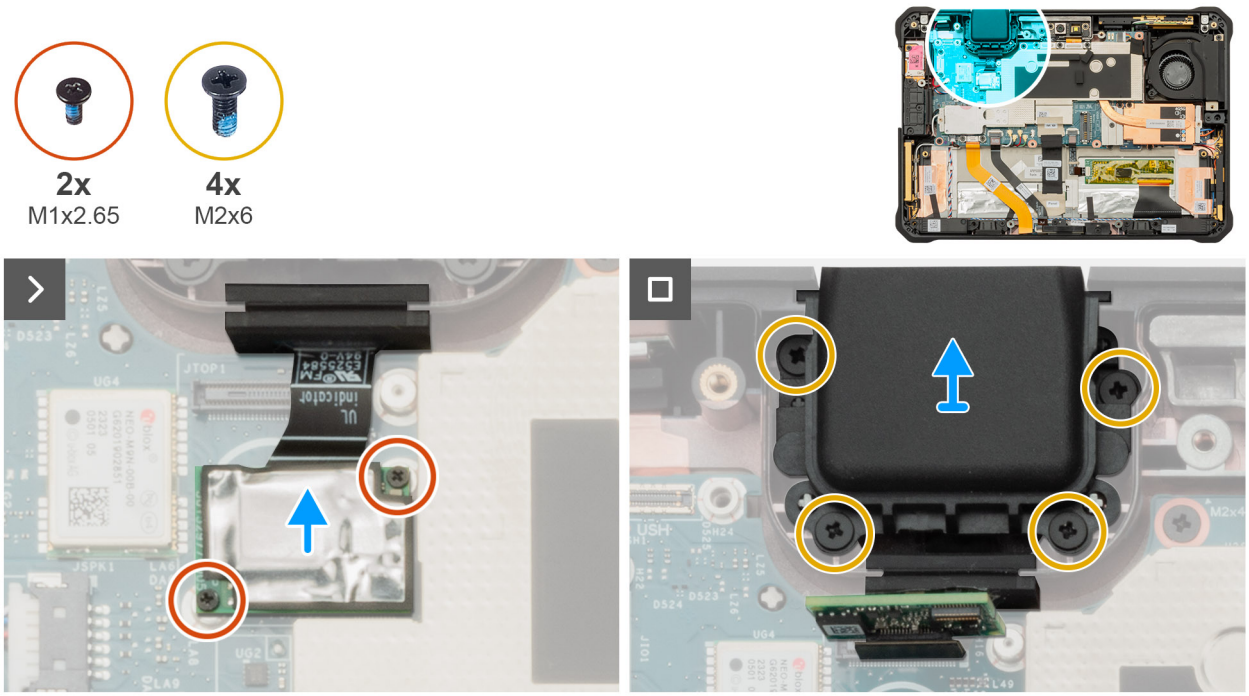

Figure 79. Removing the 1D-2D barcode-scanner assembly

Steps

1. Remove the two screws (M1x2.65) that secure the 1D-2D barcode-scanner daughter-board to the system board.
2. Using a plastic scribe, disconnect the 1D-2D barcode-scanner daughter-board from the connector on the system board.
3. Remove the four screws (M2x6) that secure the 1D-2D barcode-scanner assembly to the display assembly.
4. Carefully remove the 1D-2D barcode-scanner assembly from the display assembly.

NOTE: Technicians must carefully pull the rubber stopper out of the slot to avoid damage to the 1D-2D barcode-scanner assembly FPC when removing the 1D-2D barcode-scanner assembly from the display assembly.

Installing the 1D-2D barcode-scanner assembly

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

NOTE: This procedure applies only to tablets shipped with a 1D-2D barcode-scanner installed in the expansion bay at the top side of the tablet.

Prerequisites

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

About this task

The following images indicate the location of the 1D-2D barcode-scanner assembly and provide a visual representation of the installation procedure.

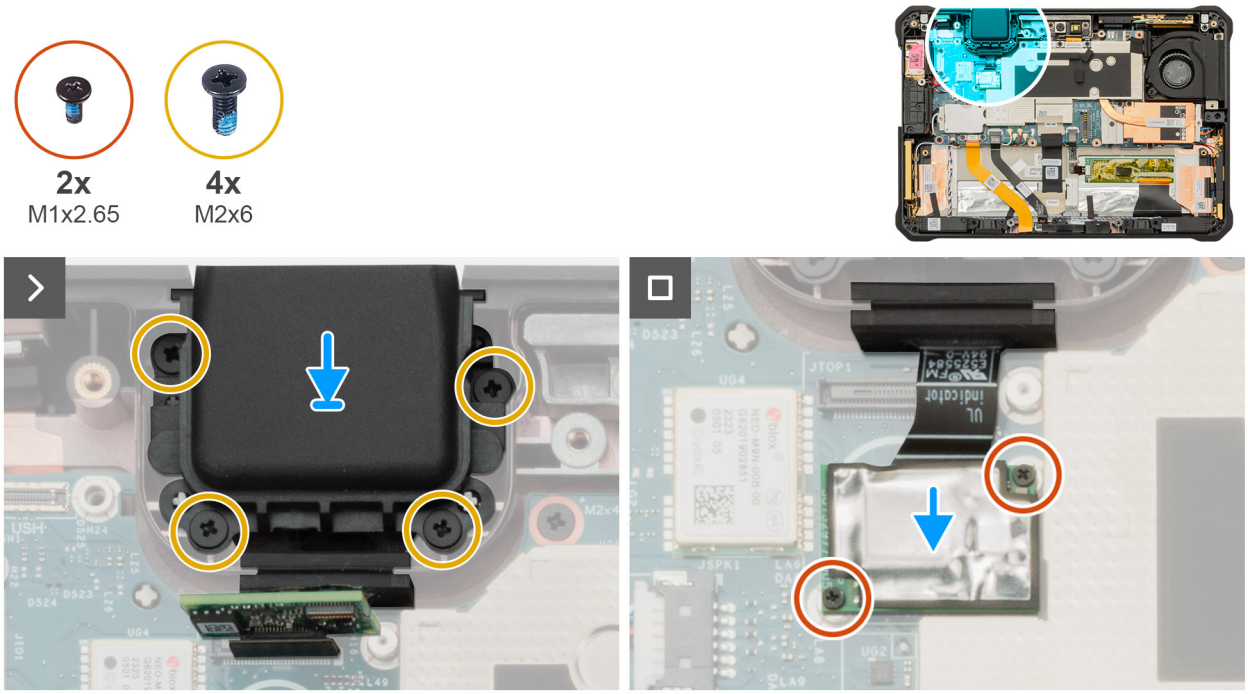

Figure 80. Installing the 1D-2D barcode-scanner assembly

Steps

1. Align the screw holes on the 1D-2D barcode-scanner assembly with the screw holes on the display assembly.
2. Replace the four screws (M2x6) to secure the 1D-2D barcode-scanner assembly to the display assembly.
3. Connect the 1D-2D barcode-scanner daughter-board to the connector on the system board.
4. Align the screw holes on the 1D-2D barcode-scanner daughter-board with the screw holes on the system board.
5. Replace the two screws (M1x2.65) to secure the 1D-2D barcode-scanner daughter-board to the system board.

Next steps

1. Install the back-cover assembly.
2. Install the hot-swappable batteries, if applicable.
3. Install the handle, if applicable.
4. Install the stylus.
5. Follow the procedure in After working inside your tablet.

WWAN-card heat-sink

Removing the WWAN-card heat-sink

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

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.

About this task

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

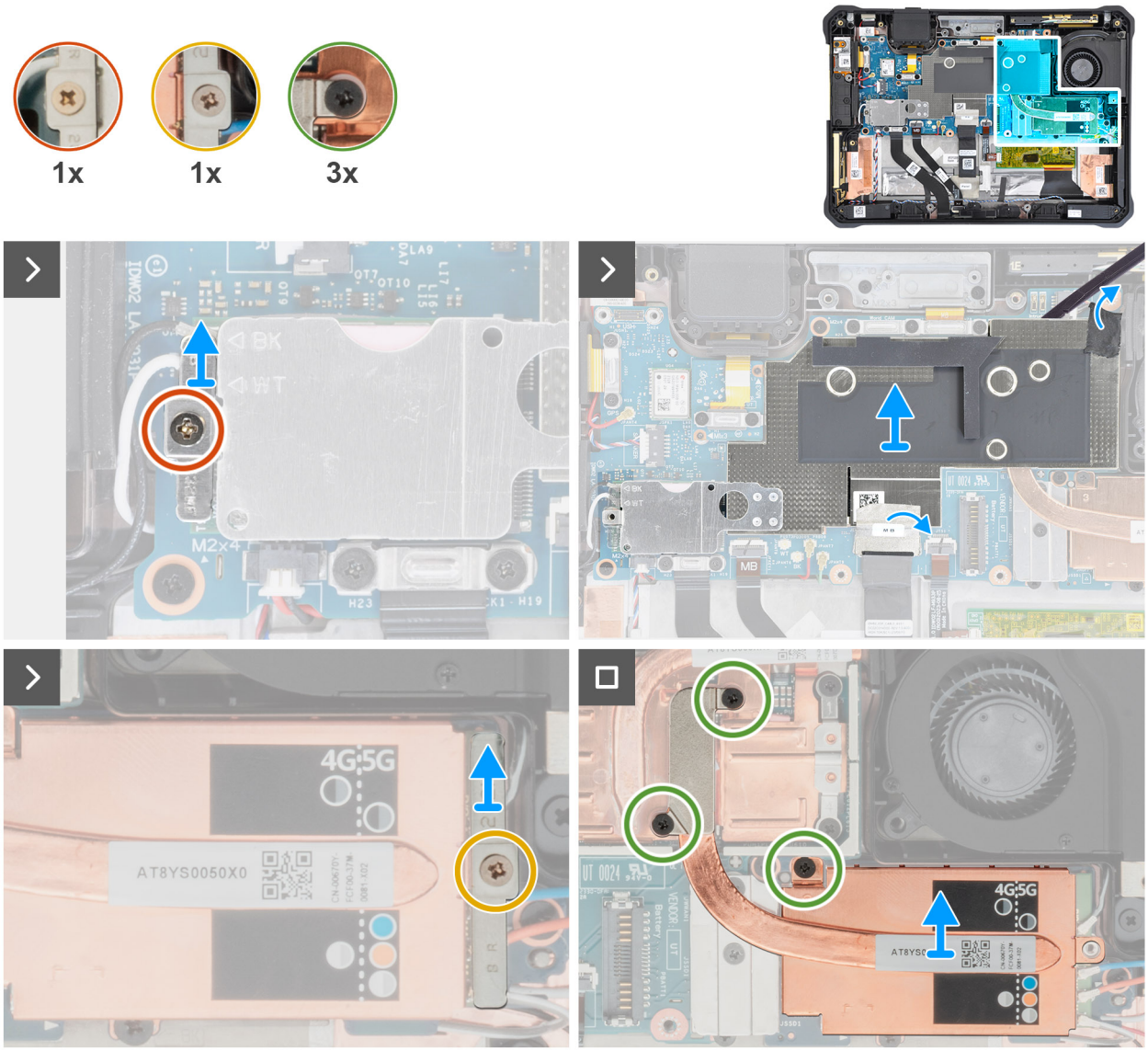

Figure 81. Removing the WWAN-card heat-sink

Steps

1. Loosen the captive screw that secures the wireless-card bracket to the wireless card.
2. Lift the wireless-card bracket off the wireless card.
3. Peel back the tape that secures the fan cable to the system-board shielding cover.
4. Peel back the tape that secures the display cable to the system-board shielding cover.
5. Using a plastic scribe, release the system-board shielding cover starting from the release point near the fan-cable connector, on the top side of the tablet. Continue working along the bottom side of the system-board shielding cover.

   NOTE: The wireless-card thermal plate is permanently attached to the system-board shielding cover. Any replacement of the wireless card requires removal of the system-board shielding cover along with the wireless-card thermal plate.

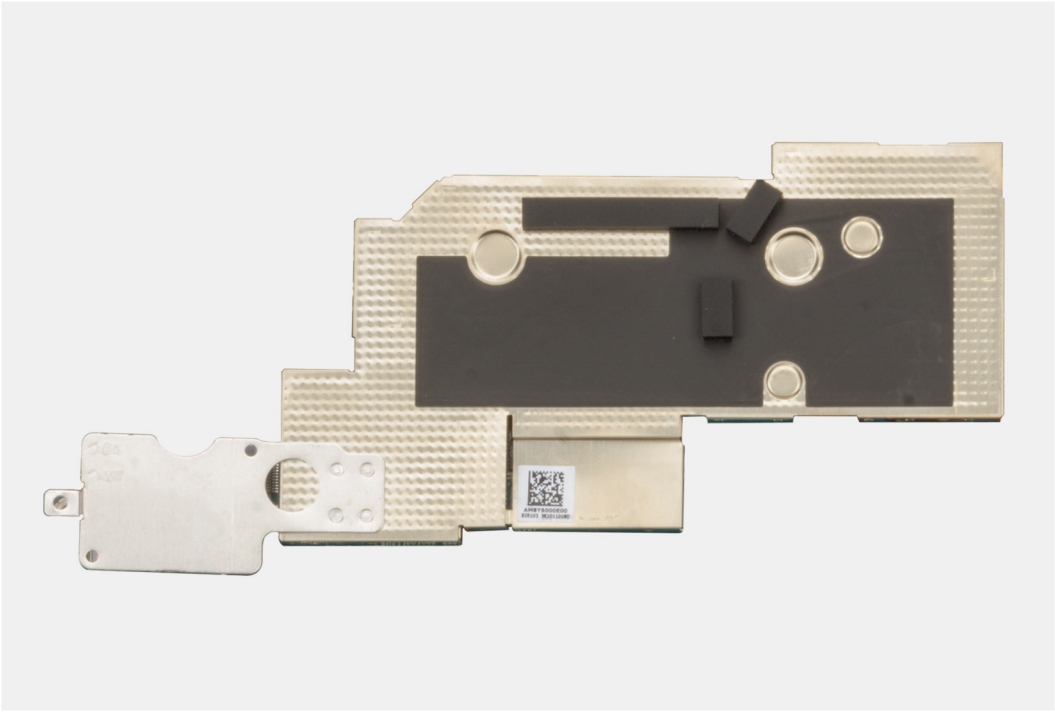

Figure 82. Removing the WWAN-card heat-sink

6. Carefully lift the system-board shielding cover, along with wireless-card thermal plate, off the display assembly.
7. Loosen the captive screw that secures the 5G WWAN-card bracket to WWAN/SSD daughter-board.

   NOTE: Steps 7 and 8 apply only to tablets shipped with a 5G WWAN card installed.

8. Lift the 5G WWAN-card bracket off the WWAN/SSD daughter-board.
9. Loosen the three captive screws that secure the WWAN-card heat-sink to the system board.

   NOTE: Loosen the three captive screws in the reverse sequential order mentioned on the WWAN-card heat-sink [3 > 2 > 1].

10. Remove the screw (M2x3) that secures the WWAN-card thermal plate to the WWAN/SSD daughter-board.

    NOTE: This step applies only to tablets shipped with a 4G WWAN card installed.

11. Lift the WWAN-card heat-sink off the tablet.
12. Remove the 4G WWAN-card holder from the WWAN/SSD daughter-board.

    NOTE: This step applies only to tablets shipped with a 4G WWAN card installed.

Figure 83. Removing the WWAN-card heat-sink

Installing the WWAN-card heat-sink

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

Prerequisites

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

About this task

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

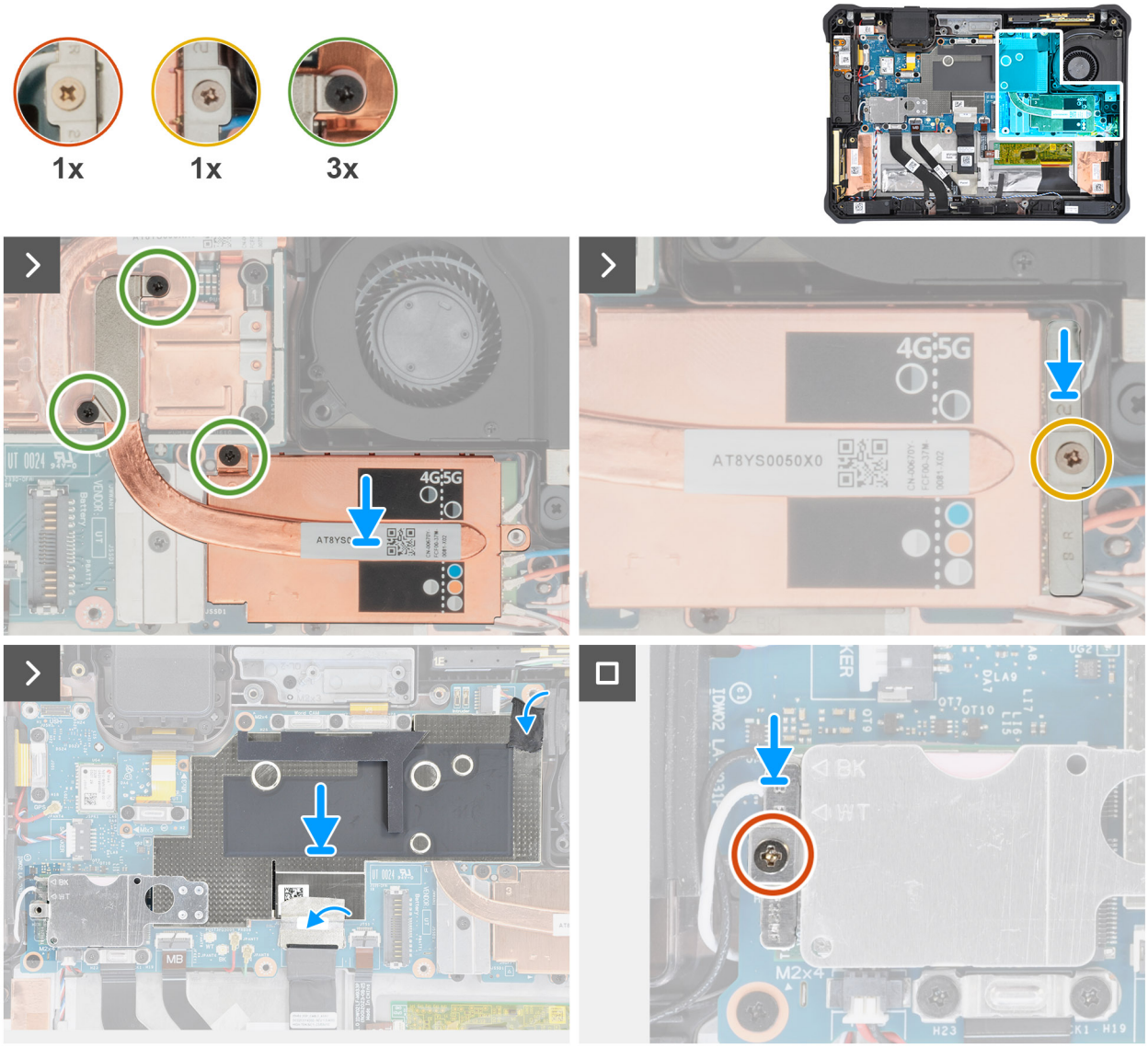

Figure 84. Installing the WWAN-card heat-sink

Steps

1. Align and place the 4G WWAN-card holder on to the WWAN/SSD daughter-board.

   NOTE: This step applies only to tablets shipped with a 4G WWAN card installed.

2. Align the screw holes on the WWAN-card heat-sink with the screw holes on the system board.
3. Replace the screw (M2x3) to secure the WWAN-card thermal plate to the WWAN/SSD daughter-board.

   NOTE: This step applies only to tablets shipped with a 4G WWAN card installed.

4. Tighten the three captive screws to secure the WWAN-card heat-sink to the system board.

   NOTE: Tighten the three captive screws in the sequential order mentioned on the WWAN-card heat-sink [1 > 2 > 3].

5. Align the screw holes on the 5G WWAN-card bracket with the screw holes on the WWAN/SSD daughter-board.
6. Tighten the captive screw to secure the 5G WWAN-card bracket to the WWAN/SSD daughter-board.

   NOTE: Steps 5 and 6 apply only to tablets shipped with a 5G WWAN card installed.

7. Align and place the system-board shielding cover, along with wireless-card thermal plate on the system board and continue working along the bottom side of the system-board shielding cover until it clicks in place.

NOTE: The wireless-card thermal plate is permanently attached to the system-board shielding cover. Any replacement of the wireless card requires removal of the system-board shielding cover along with the wireless-card thermal plate.

8. Adhere the tape to secure the display cable to the system-board shielding cover.
9. Adhere the tape to secure the fan cable to the system-board shielding cover.
10. Align and place the wireless-card bracket on the system board.
11. Tighten the captive screw to secure the wireless-card bracket to the wireless card.

Next steps

1. Install the back-cover assembly.
2. Install the hot-swappable batteries, if applicable.
3. Install the handle, if applicable.
4. Install the stylus.
5. Follow the procedure in After working inside your tablet.

Fan and heat-sink assembly

Removing the fan and heat-sink assembly

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

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.
6. Remove the WWAN-card heat-sink.

About this task

The following images indicate the location of the fan and heat-sink assembly and provide a visual representation of the removal procedure.

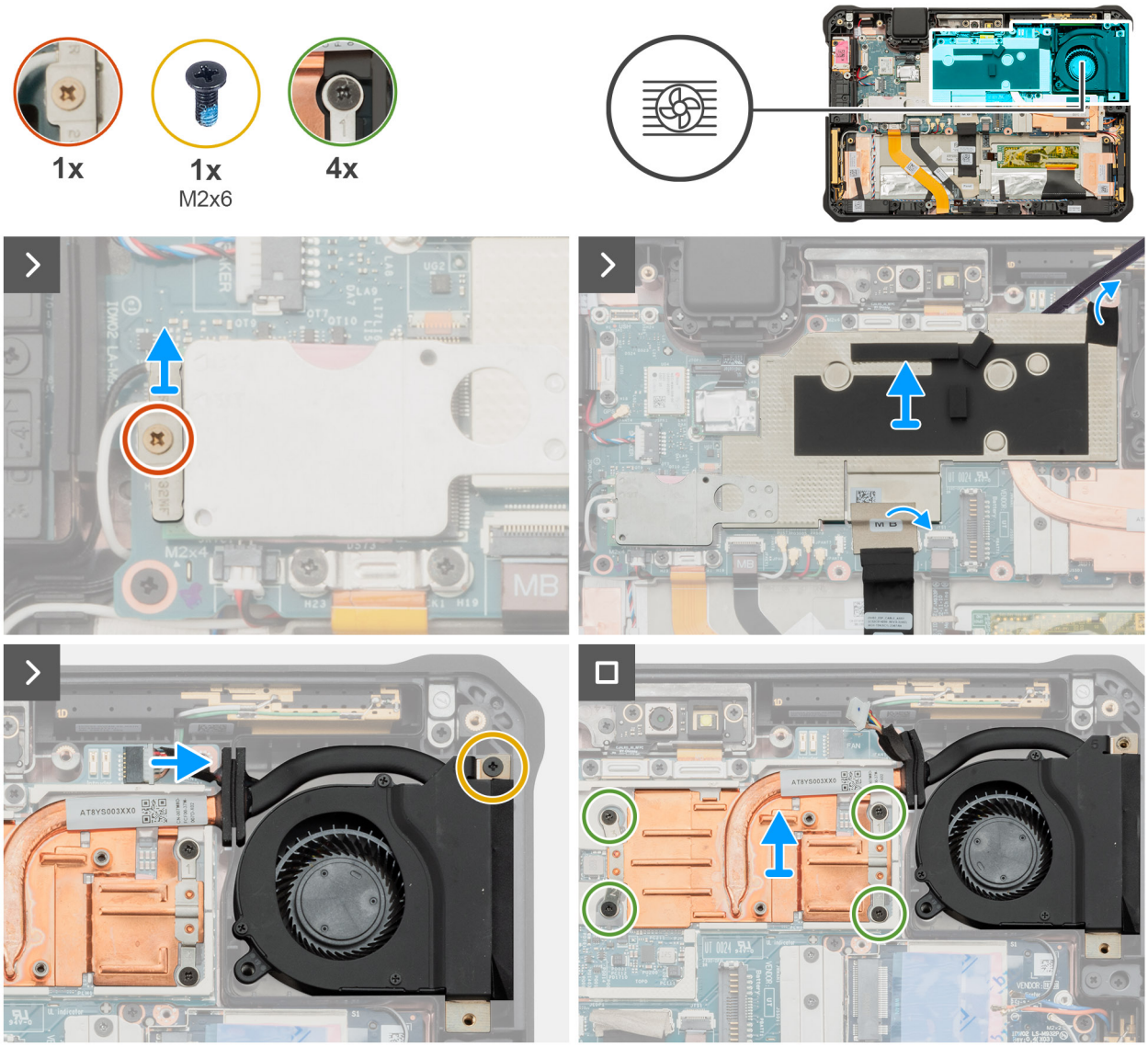

Figure 85. Removing the fan and heat-sink assembly

Steps

1. Loosen the captive screw that secures the wireless-card bracket to the wireless card.
2. Lift the wireless-card bracket off the wireless card.
3. Peel back the tape that secures the fan cable to the system-board shielding cover.
4. Peel back the tape that secures the display cable to the system-board shielding cover.
5. Using a plastic scribe, release the system-board shielding cover starting from the release point near the fan-cable connector, on the top side of the tablet. Continue working along the bottom side of the system-board shielding cover.

   NOTE: The wireless-card thermal plate is permanently attached to the system-board shielding cover. Any replacement of the wireless card requires removal of the system-board shielding cover along with the wireless-card thermal plate.

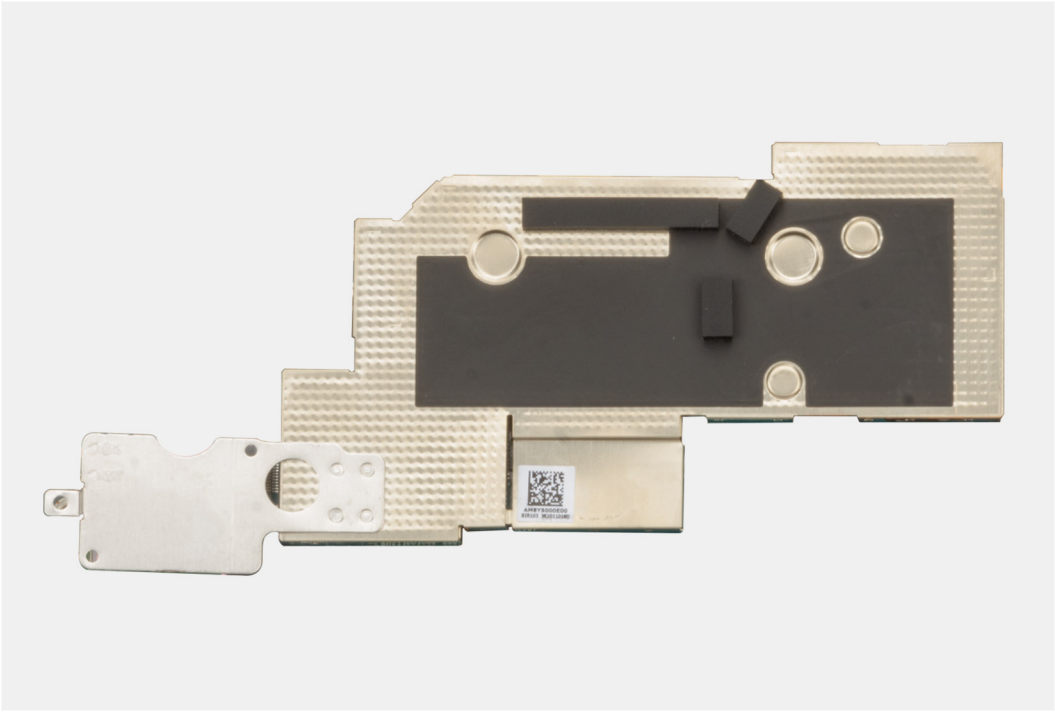

Figure 86. Removing the fan and heat-sink assembly

6. Carefully lift the system-board shielding cover, along with wireless-card thermal plate, off the display assembly.
7. Using a plastic scribe, disconnect the fan cable from the connector on the system board.
8. Remove the screw (M2x6) that secures the fan and heat-sink assembly to the display assembly.
9. Loosen the four captive screws that secure the fan and heat-sink assembly to the system board.

   NOTE: Loosen the four captive screws in the reverse sequential order mentioned on the heat sink [4 > 3 > 2 > 1].

10. Remove the fan and heat-sink assembly from the display assembly.

    NOTE: Technicians must carefully pull the rubber stopper out of the slot to avoid damage to the fan and heat-sink assembly when removing the fan and heat-sink assembly from the display assembly.

Installing the fan and heat-sink assembly

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

Prerequisites

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

About this task

The following images indicate the location of the fan and heat-sink assembly and provide a visual representation of the installation procedure.

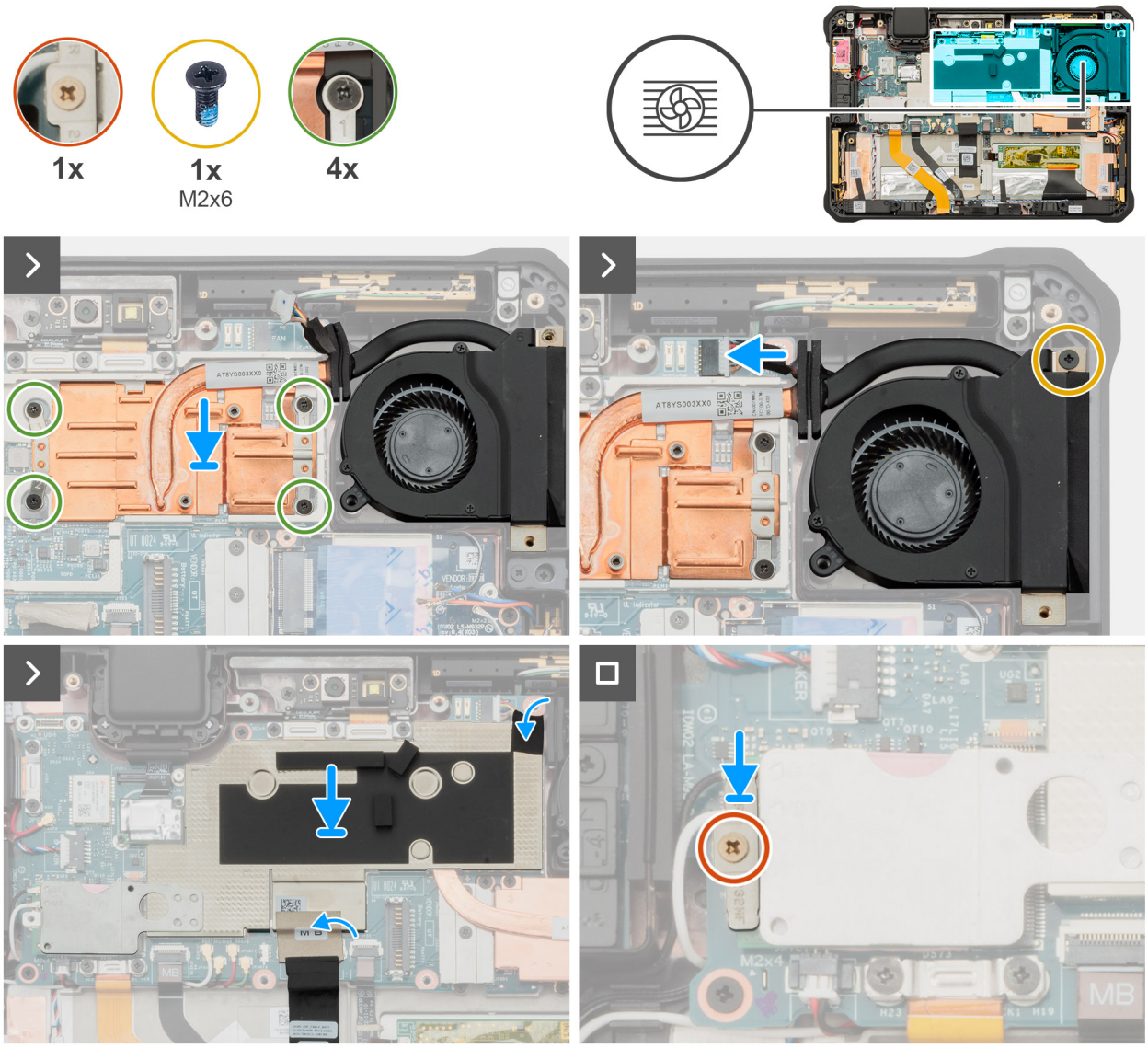

Figure 87. Installing the fan and heat-sink assembly

Steps

1. Align the screw holes on the fan and heat-sink assembly with the screw holes on the system board.
2. Tighten the four captive screws to secure the fan and heat-sink assembly to the system board.

   NOTE: Tighten the four captive screws in the sequential order mentioned on the heat sink [1 > 2 > 3 > 4].

3. Replace the screw (M2x6) to secure the fan and heat-sink assembly to the display assembly.
4. Connect the fan cable to the connector on the system board.
5. Align and place the system-board shielding cover, along with wireless-card thermal plate on the system board and continue working along the bottom side of the system-board shielding cover until it clicks in place.

   NOTE: The wireless-card thermal plate is permanently attached to the system-board shielding cover. Any replacement of the wireless card requires removal of the system-board shielding cover along with the wireless-card thermal plate.

6. Adhere the tape to secure the display cable to the system-board shielding cover.
7. Adhere the tape to secure the fan cable to the system-board shielding cover.
8. Align and place the wireless-card bracket on the system board.
9. Tighten the captive screw to secure the wireless-card bracket to the wireless card.

Next steps

1. Install the WWAN/SSD daughter-board.
2. Install the WWAN card.
3. Install the WWAN-card heat-sink.
4. Install the back-cover assembly.
5. Install the hot-swappable batteries, if applicable.
6. Install the handle, if applicable.
7. Install the stylus.
8. Follow the procedure in After working inside your tablet.

Wireless Wide Area Network (WWAN) card

Removing the WWAN card

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

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.
6. Remove the WWAN-card heat-sink.

About this task

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

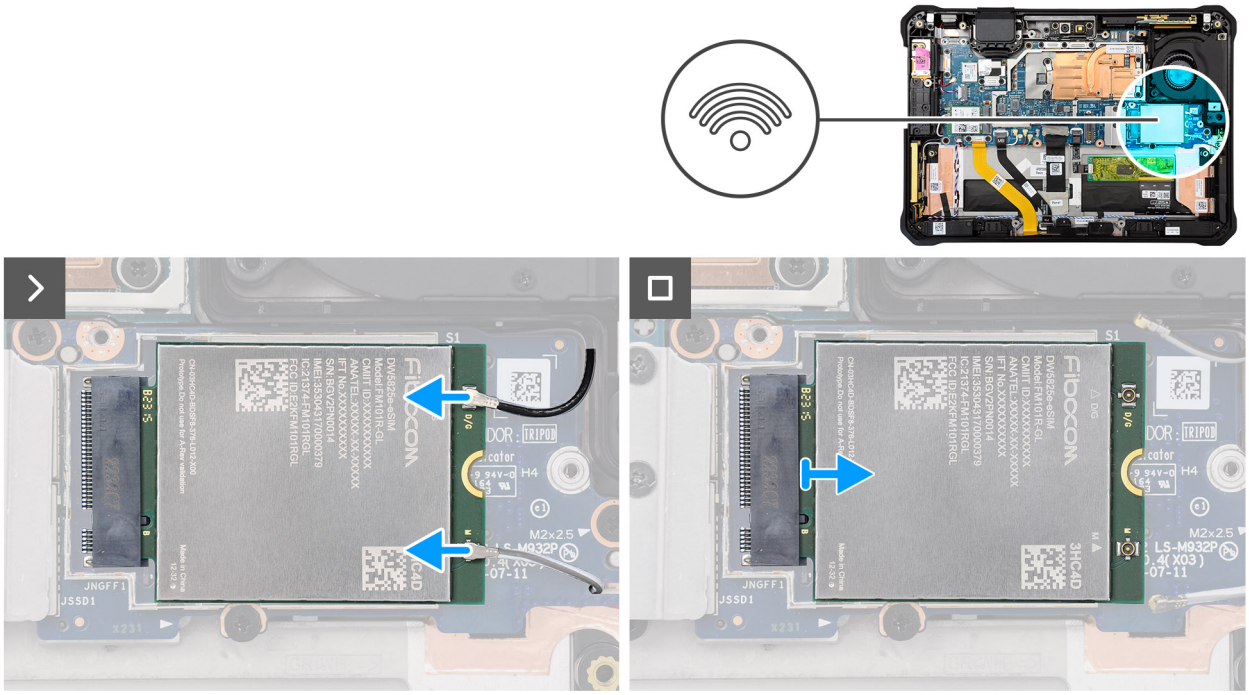

Figure 88. Removing the 4G WWAN card

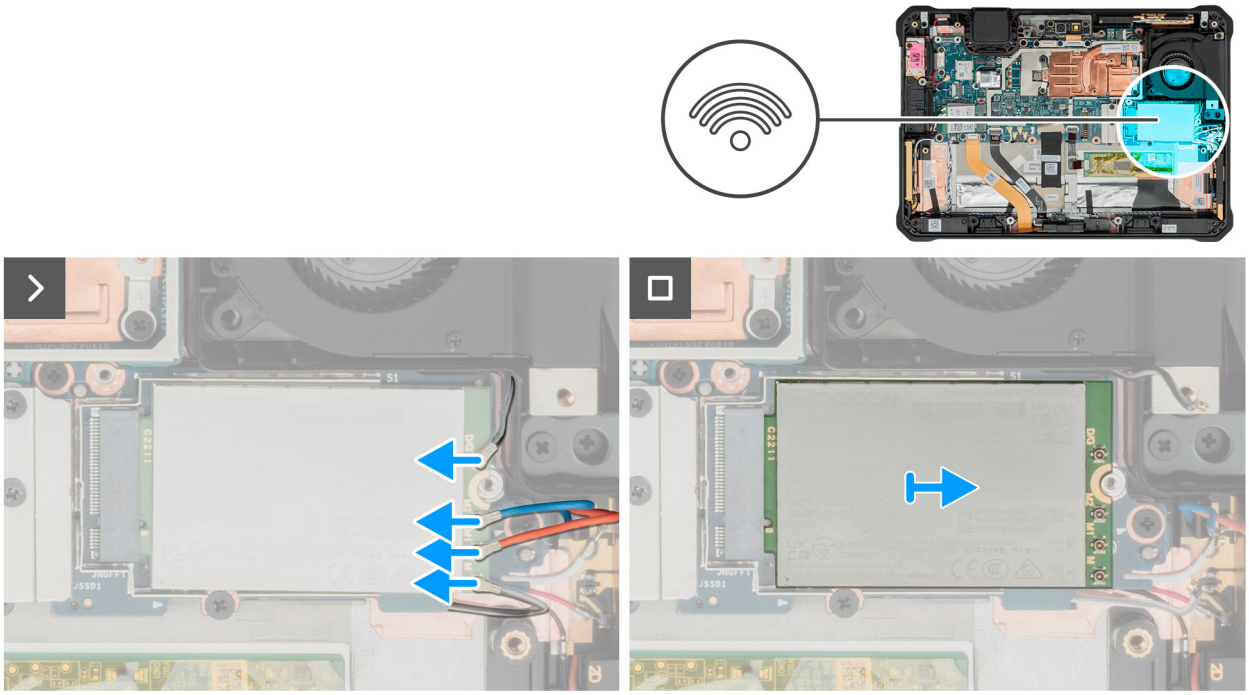

Figure 89. Removing the 5G WWAN card

Steps

1. Disconnect the WWAN-antenna cables from the connectors on the WWAN card.
2. Slide and remove the WWAN card from the WWAN-card slot on the WWAN/SSD daughter-board.

Installing the WWAN card

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

Prerequisites

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

About this task

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

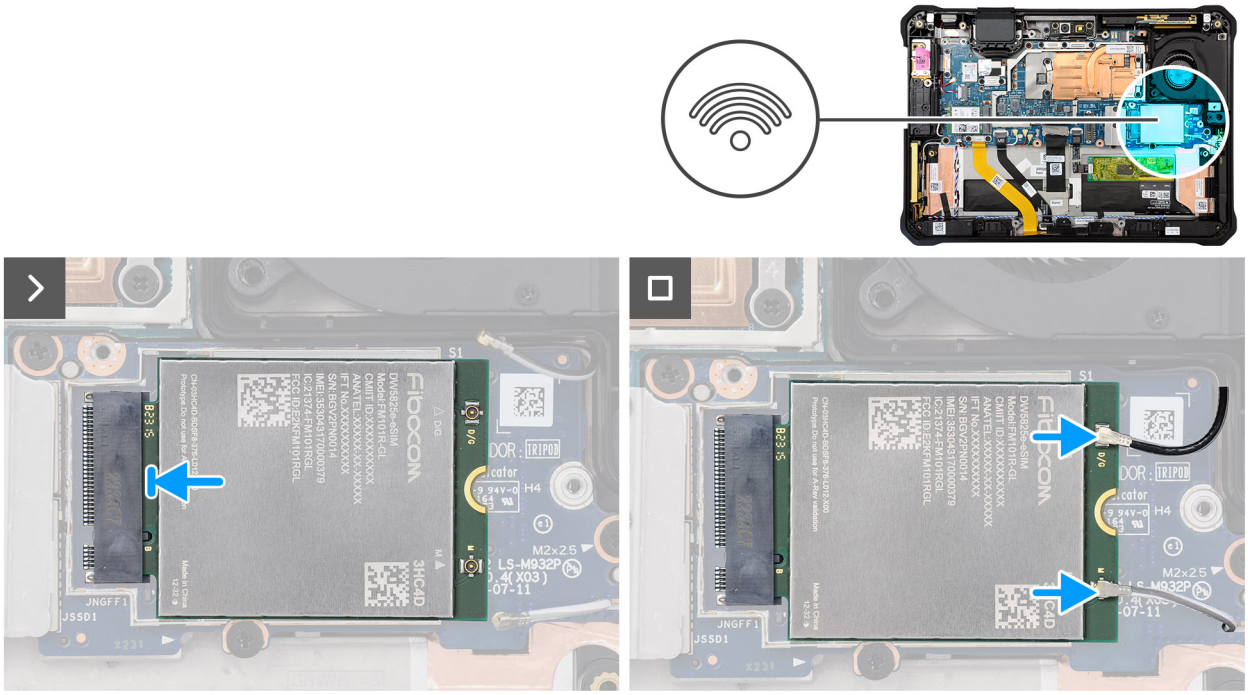

Figure 90. Installing the 4G WWAN card

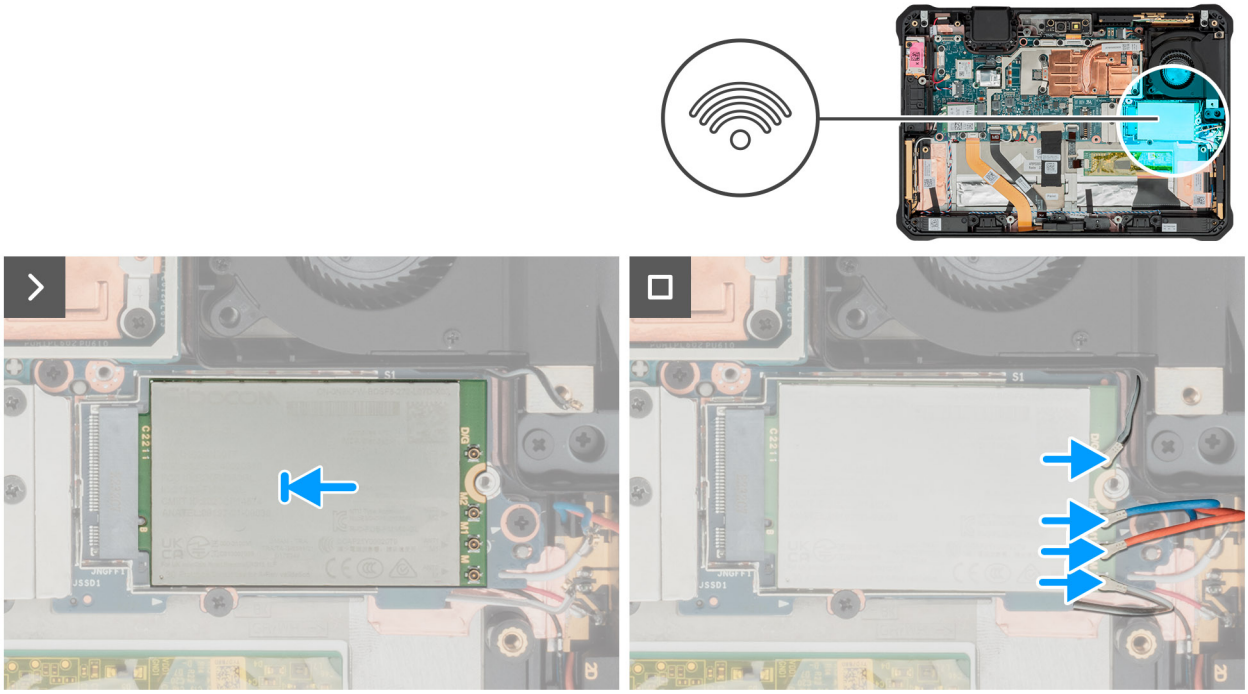

Figure 91. Installing the 5G WWAN card

Steps

1. Align the notch on the WWAN card with the tab on the WWAN-card slot.
2. Slide the WWAN card at an angle into the WWAN-card slot.
3. Connect the WWAN-antenna cables to the connectors on the WWAN card.

Next steps

1. Install the WWAN-card heat-sink.

2. Install the back-cover assembly.
3. Install the hot-swappable batteries, if applicable.
4. Install the handle, if applicable.
5. Install the stylus.
6. Follow the procedure in After working inside your tablet.

WWAN/SSD daughter-board

Removing the WWAN/SSD daughter-board

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

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.
6. Remove the WWAN-card heat-sink.
7. Remove the WWAN card.

About this task

The following images indicate the location of the WWAN/SSD daughter-board and provide a visual representation of the removal procedure.

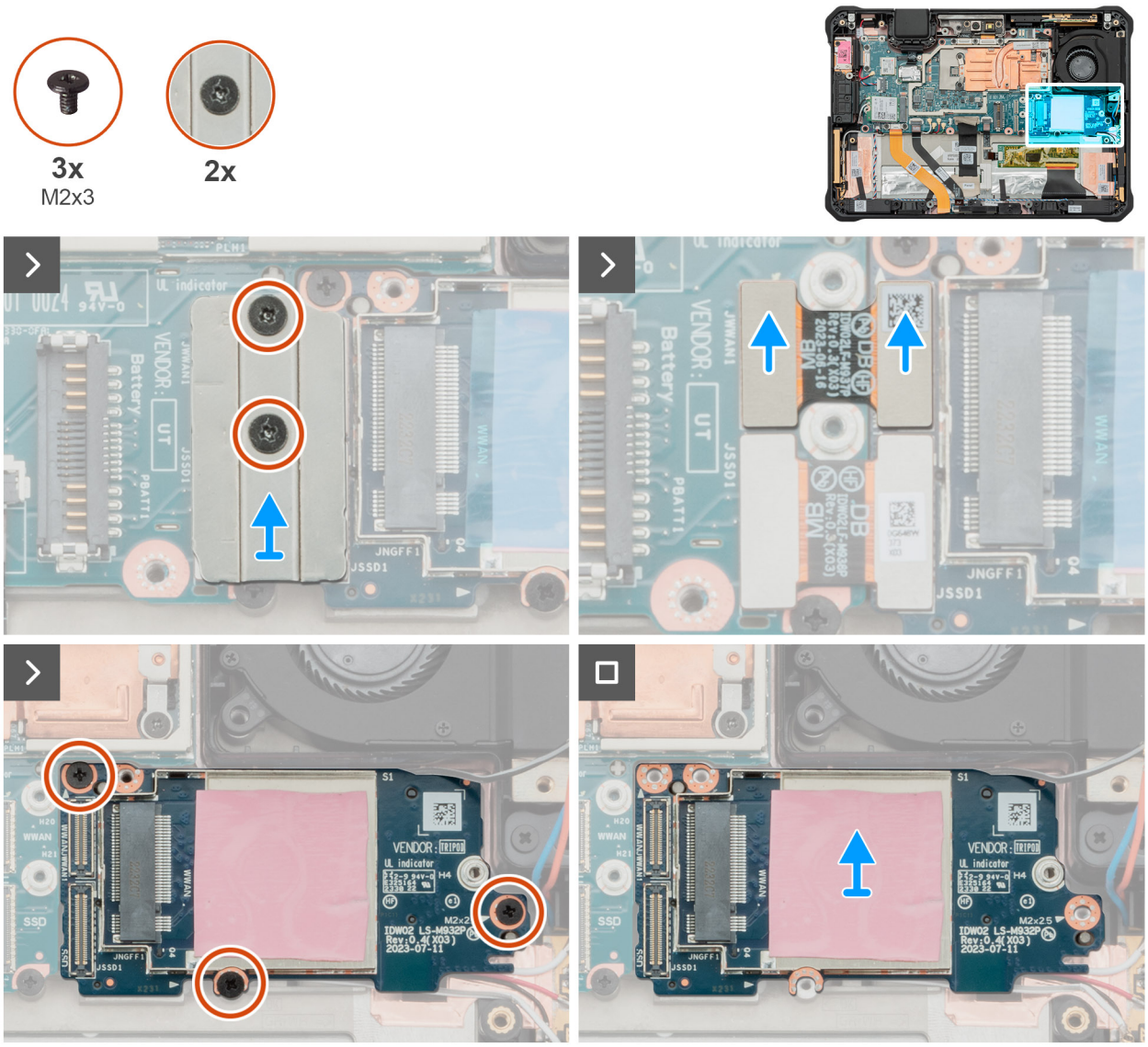

Figure 92. Removing the WWAN/SSD daughter-board

Steps

1. Loosen the two captive screws that secure the WWAN/SSD connector bracket to the system board.

   NOTE: Loosen the two captive screws in the reverse sequential order mentioned on the WWAN/SSD connector bracket [2 > 1].

2. Lift the WWAN/SSD connector bracket off the system board.
3. Disconnect and remove the WWAN FPC from the connector on the system board and the WWAN/SSD daughter-board.
4. Disconnect and remove the SSD FPC from the connector on the system board and the WWAN/SSD daughter-board.
5. Remove the three screws (M2x3) that secure the WWAN/SSD daughter-board to the display assembly.
6. Remove the WWAN/SSD daughter-board from the display-assembly.

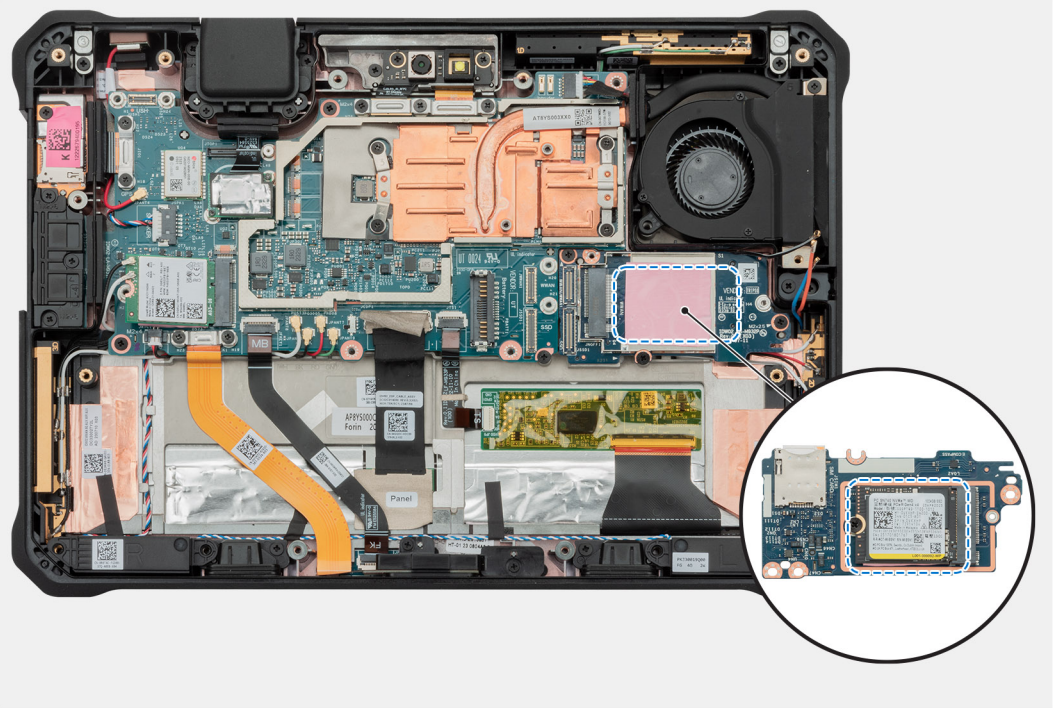

Figure 93. Removing the WWAN/SSD daughter-board

Installing the WWAN/SSD daughter-board

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

Prerequisites

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

About this task

The following images indicate the location of the WWAN/SSD daughter-board and provide a visual representation of the installation procedure.

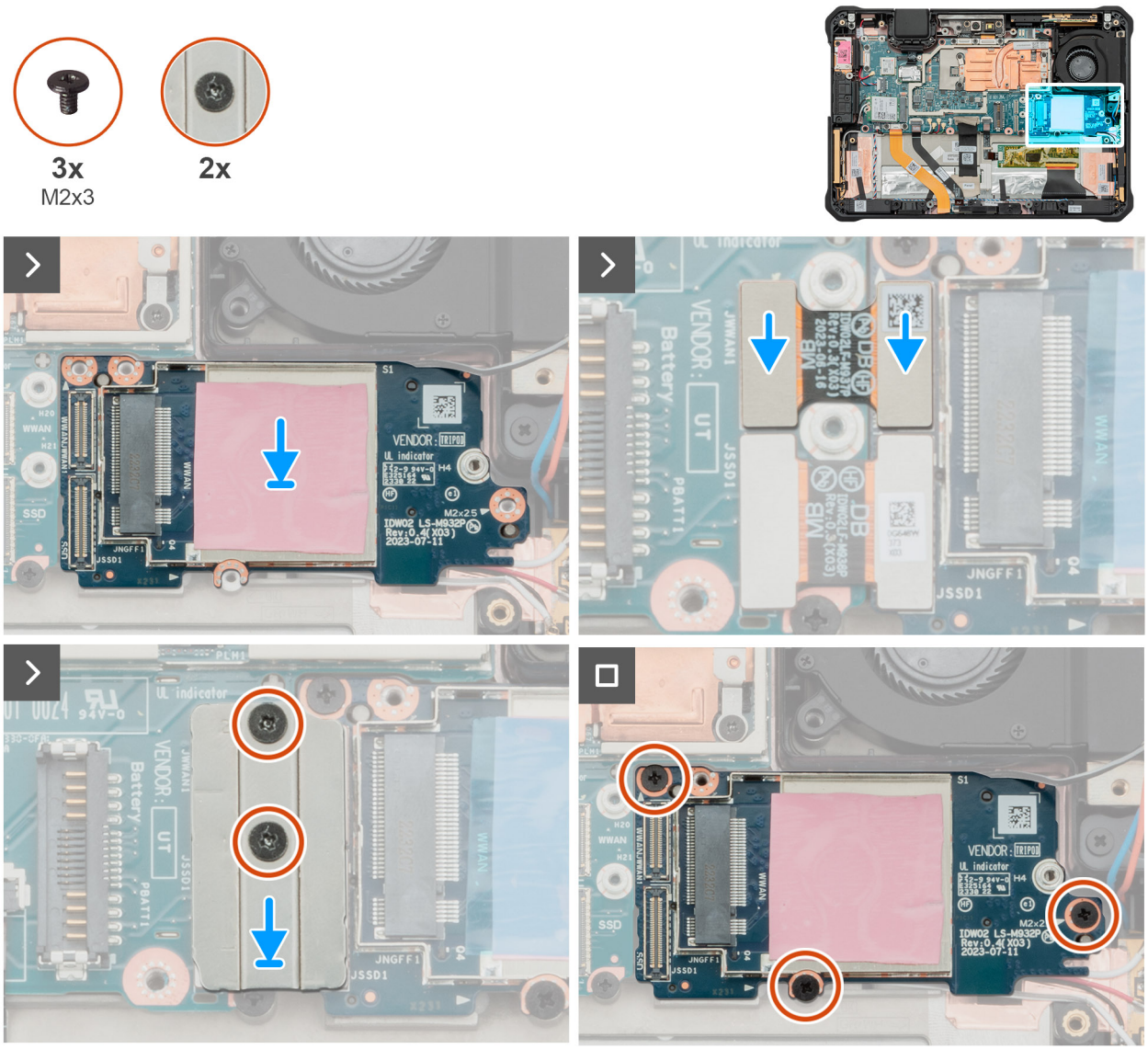

Figure 94. Installing the WWAN/SSD daughter-board

Steps

1. Align the screw holes on the WWAN/SSD daughter-board with the screw holes on the display assembly.
2. Align and connect the SSD FPC to the connector on the system board and the WWAN/SSD daughter-board.
3. Align and connect the WWAN FPC to the connector on the system board and the WWAN/SSD daughter-board.
4. Align and place the WWAN/SSD connector bracket onto the system board.
5. Tighten the two captive screws to secure the WWAN/SSD connector bracket to the system board.

   NOTE: Tighten the two captive screws in the sequential order mentioned on the WWAN/SSD connector bracket [1 > 2].

6. Replace the three screws (M2x3) to secure the WWAN/SSD daughter-board to the display assembly.

Next steps

1. Install the WWAN card.
2. Install the WWAN-card heat-sink
3. Install the back-cover assembly.
4. Install the hot-swappable batteries, if applicable.
5. Install the handle, if applicable.
6. Install the stylus.

7. Follow the procedure in After working inside your tablet.

M.2 solid state drive

Removing the M.2 2230 solid-state drive

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

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.
6. Remove the WWAN-card heat-sink.
7. Remove the WWAN card.
8. Remove the WWAN/SSD daughter-board.

About this task

The following images indicate the location of the M.2 2230 solid-state drive and provide a visual representation of the removal procedure.

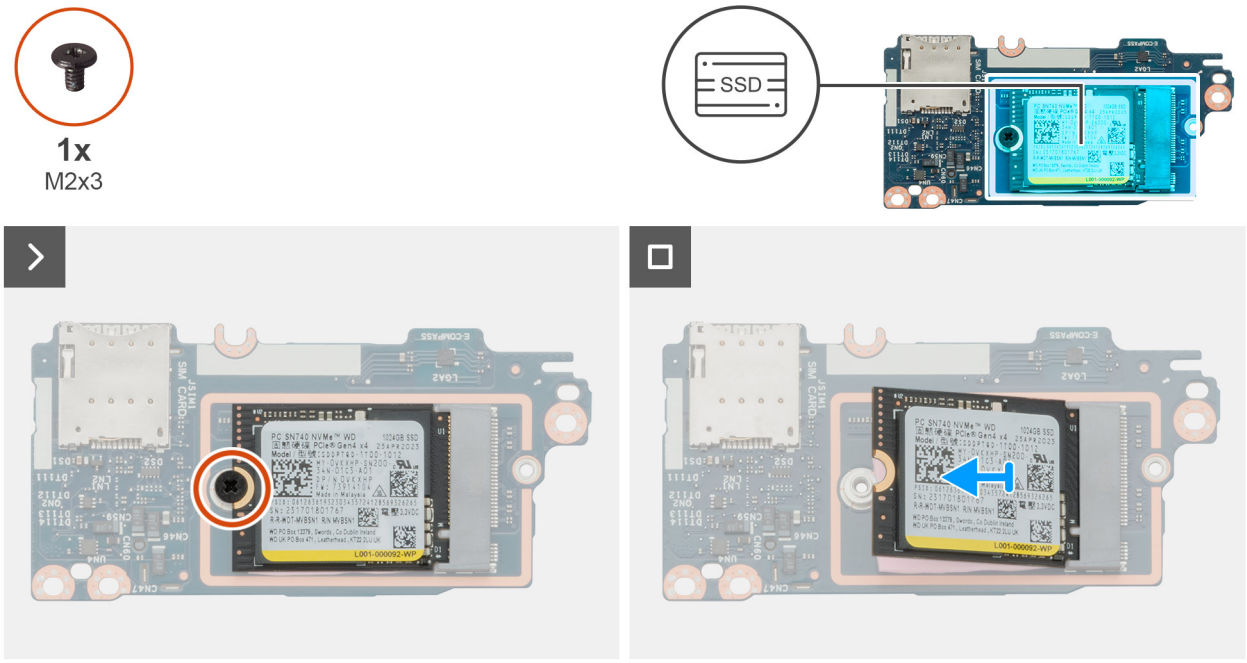

Figure 95. Removing the M.2 2230 solid-state drive

Steps

1. Flip the WWAN/SSD daughter-board to access the M.2 2230 solid-state drive.
2. Remove the screw (M2x3) that secures the M.2 2230 solid-state drive to the WWAN/SSD daughter-board.
3. Slide and remove the M.2 2230 solid-state drive from the connector on the WWAN/SSD daughter-board.

Installing the M.2 2230 solid-state drive

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

Prerequisites

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

About this task

The following images indicate the location of the M.2 2230 solid-state drive and provide a visual representation of the installation procedure.

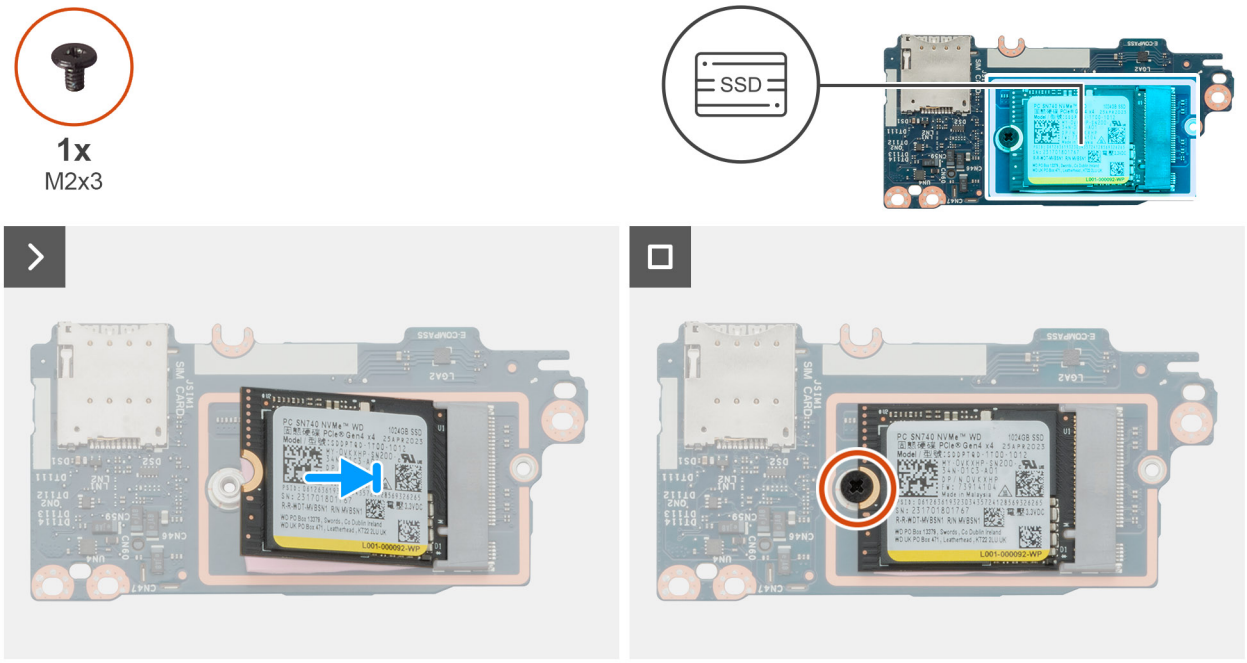

Figure 96. Installing the M.2 2230 solid-state drive

Steps

1. Flip the WWAN/SSD daughter-board to access the M.2 2230 solid-state drive slot.
2. Align the notch on the solid-state drive with the tab on the solid-state drive slot.
3. Replace the screw (M2x3) to secure the M.2 2230 solid-state drive to the WWAN/SSD daughter-board.

Next steps

1. Install the WWAN/SSD daughter-board.
2. Install the WWAN card.
3. Install the WWAN-card heat-sink.
4. Install the back-cover assembly.
5. Install the hot-swappable batteries, if applicable.
6. Install the handle, if applicable.
7. Install the stylus.
8. Follow the procedure in After working inside your tablet.

Subscriber Identification Module (SIM) card with internal battery

Removing the SIM card (for internal battery)

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

NOTE: This procedure applies only to tablets shipped with an internal battery installed.

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the back-cover assembly.
6. Remove the WWAN-card heat-sink.
7. Remove the WWAN card.
8. Remove the WWAN/SSD daughter-board.

About this task

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

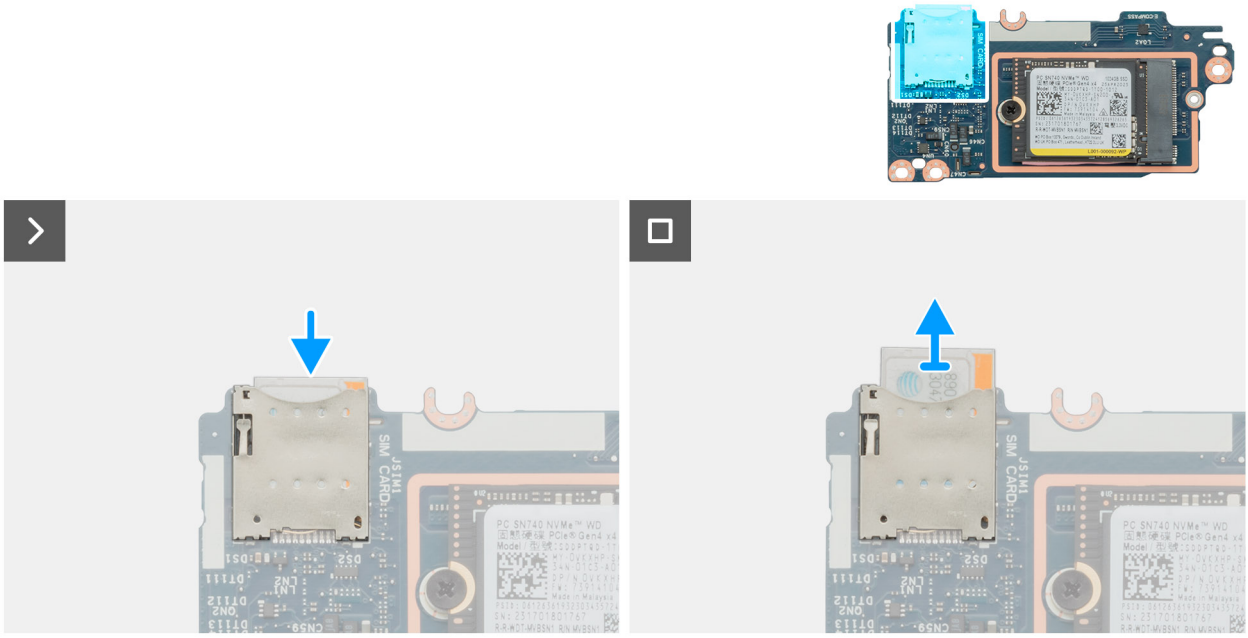

Figure 97. Removing the SIM card (for internal battery)

Steps

1. Flip the WWAN/SSD daughter-board to access the SIM-card slot.
2. Using a flat-pointed scribe, press the SIM card to release it from the SIM-card slot.
3. Slide and remove the SIM card from the SIM-card slot on the WWAN/SSD daughter-board.

Installing the SIM card (for internal battery)

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

NOTE: This procedure applies only to tablets shipped with an internal battery installed.

Prerequisites

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

About this task

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

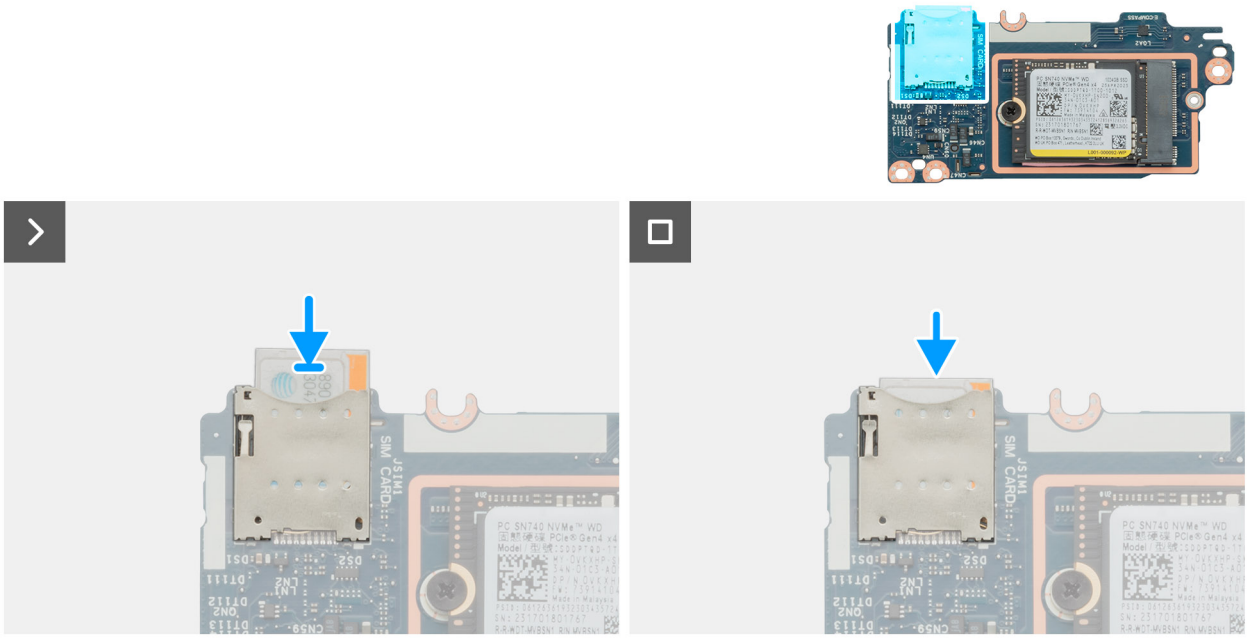

Figure 98. Installing the SIM card (for internal battery)

Steps

1. Flip the WWAN/SSD daughter-board to access the SIM-card slot.
2. Insert the SIM card into the SIM-card slot.
3. Gently slide the SIM card into the SIM-card slot on the WWAN/SSD daughter-board.

Next steps

1. Install the WWAN/SSD daughter-board.
2. Install the WWAN card.
3. Install the WWAN-card heat-sink.
4. Install the back-cover assembly.
5. Install the hot-swappable batteries, if applicable.
6. Install the handle, if applicable.
7. Install the stylus.
8. Follow the procedure in After working inside your tablet.

System board

Removing the system board

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

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the SIM card (for hot-swappable batteries), if applicable.
6. Remove the back-cover assembly.
7. Remove the I/O daughter-board.
8. Remove the wireless card.
9. Remove the blank top-cover, or the RJ45-port assembly, or the USB-port assembly, or the audio-jack assembly, or the 1D-2D barcode-scanner assembly, whichever is applicable.
10. Remove the WWAN-card heat-sink.
11. Remove the fan and heat-sink assembly.

About this task

The following image indicates the connectors on your system board.

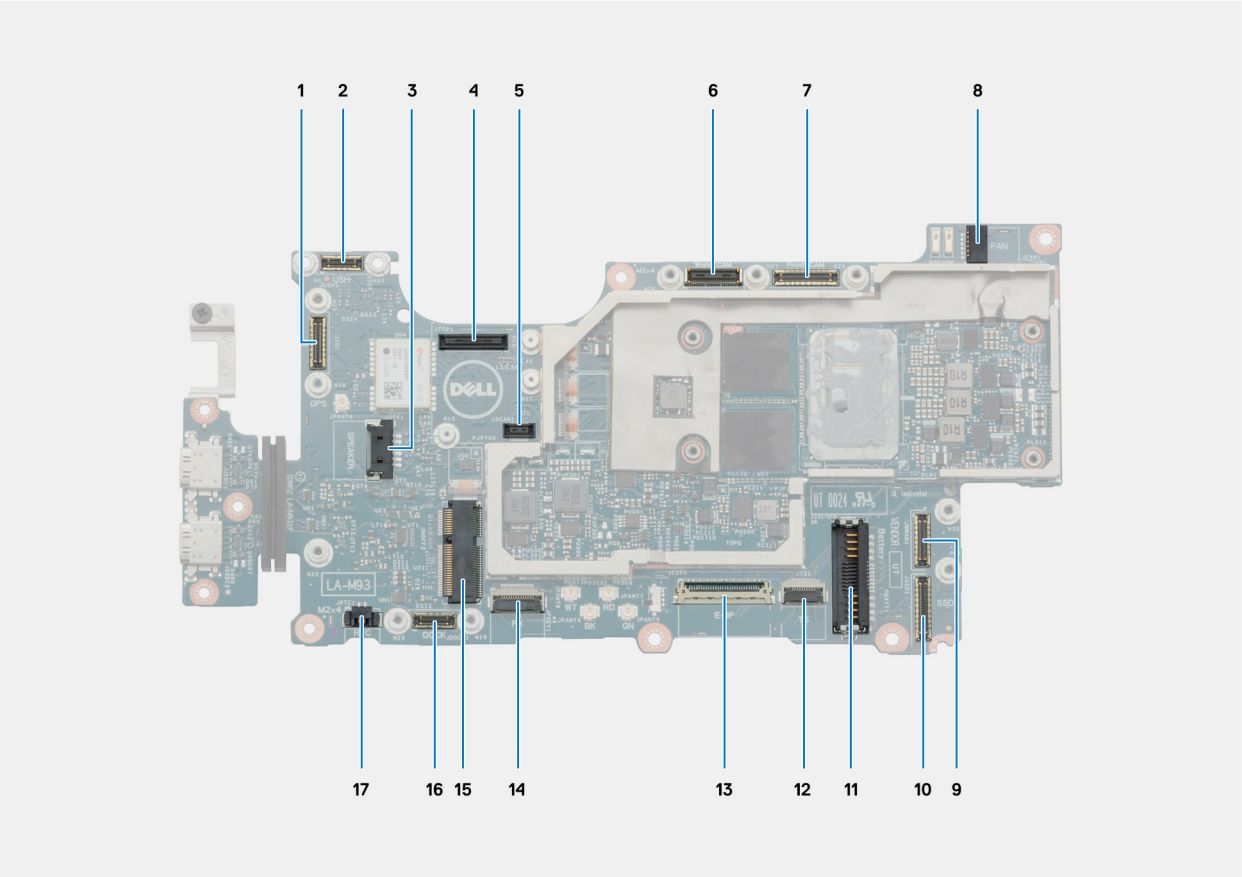

Figure 99. System board connectors

1. I/O daughter-board cable connector
2. USH daughter-board cable connector

3. Speaker cable connector
4. RJ-45/USB 3.2 Gen 1 port/Universal audio jack daughter-board connector
5. 1D-2D barcode-scanner daughter-board connector
6. World-facing camera cable connector
7. Front-camera cable connector
8. Fan cable connector
9. WWAN FPC connector
10. SSD FPC connector
11. Battery cable connector
12. Touch-screen cable connector
13. eDP cable connector
14. Function-button FPC connector
15. Wireless card connector
16. Docking FPC connector
17. Coin-cell battery cable connector

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

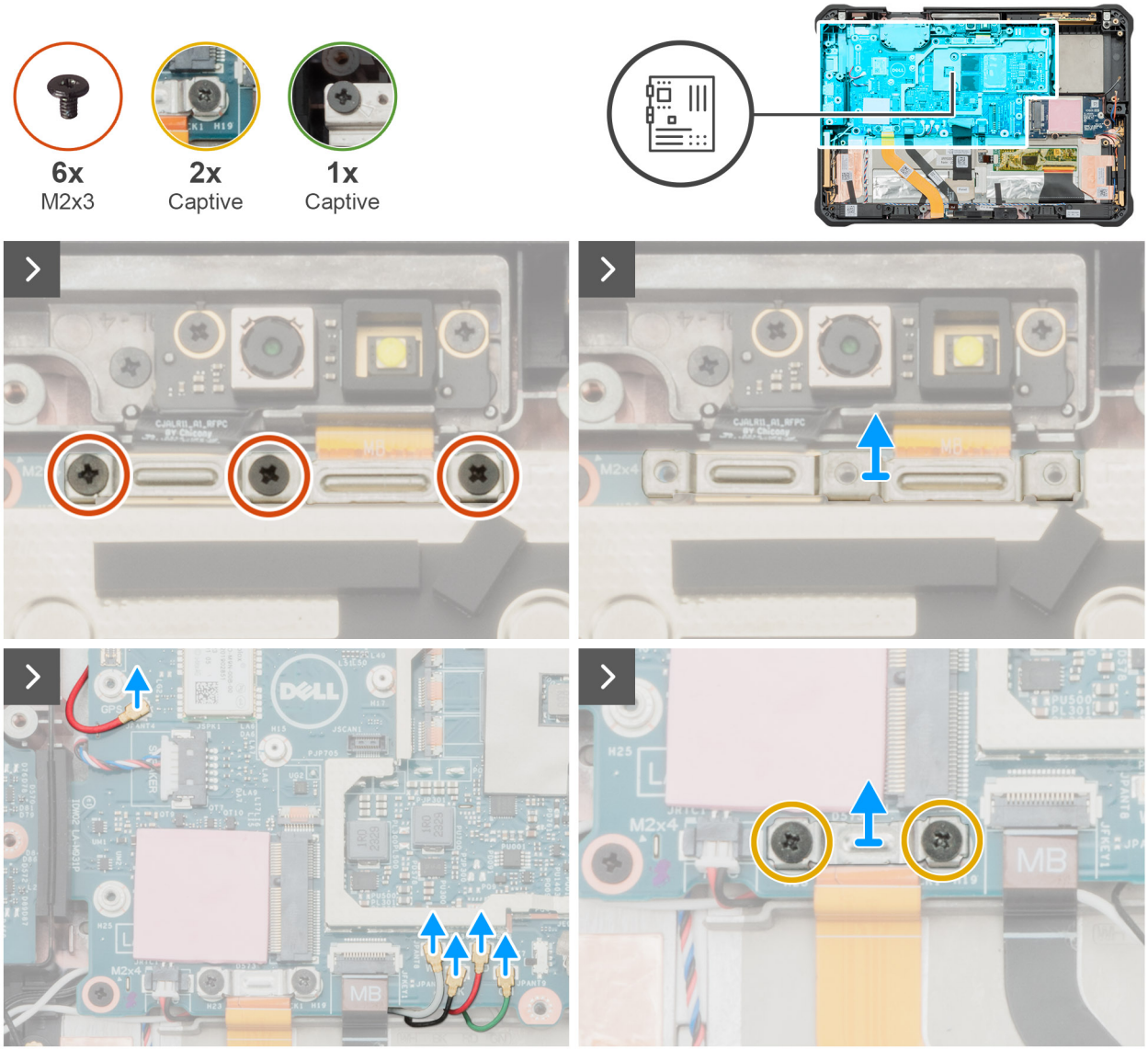

Figure 100. Removing the system board

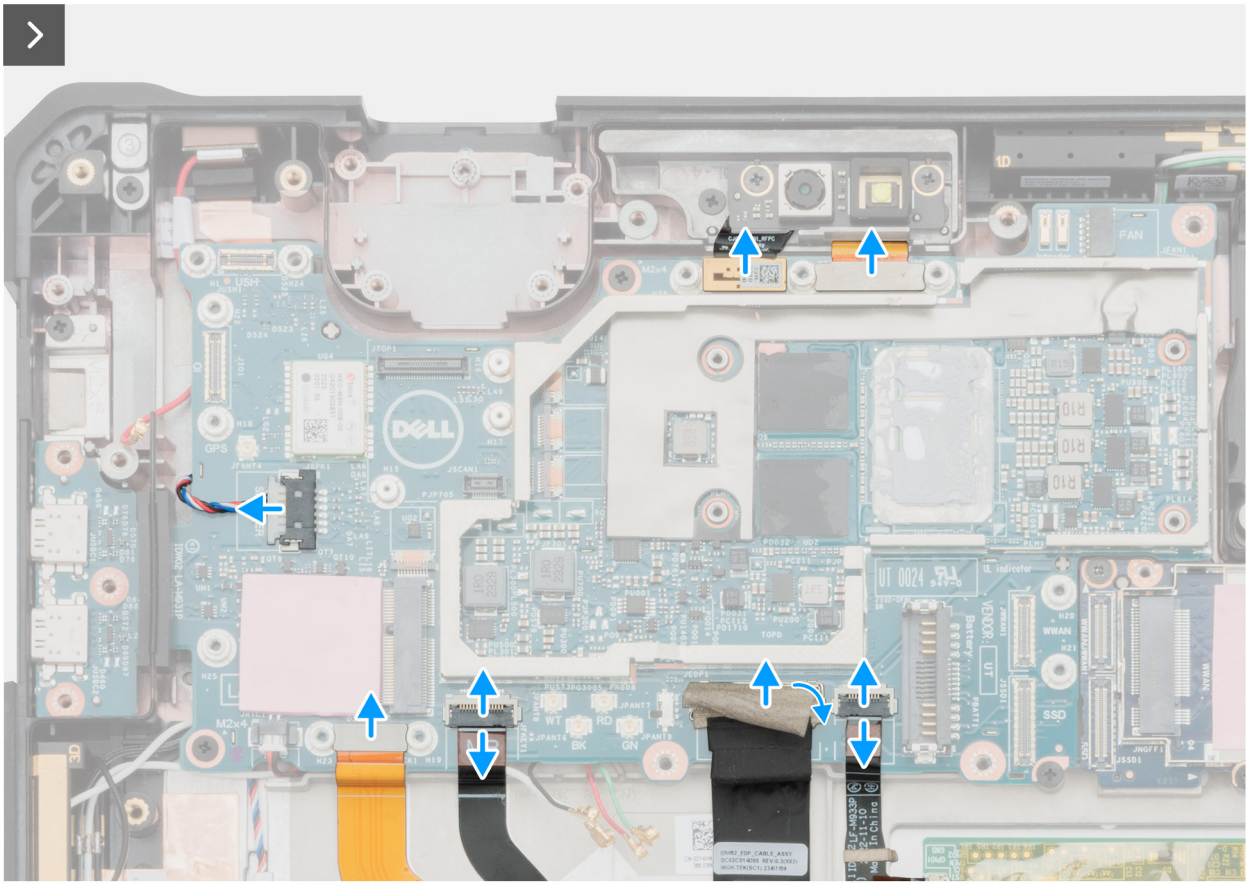

Figure 101. Removing the system board

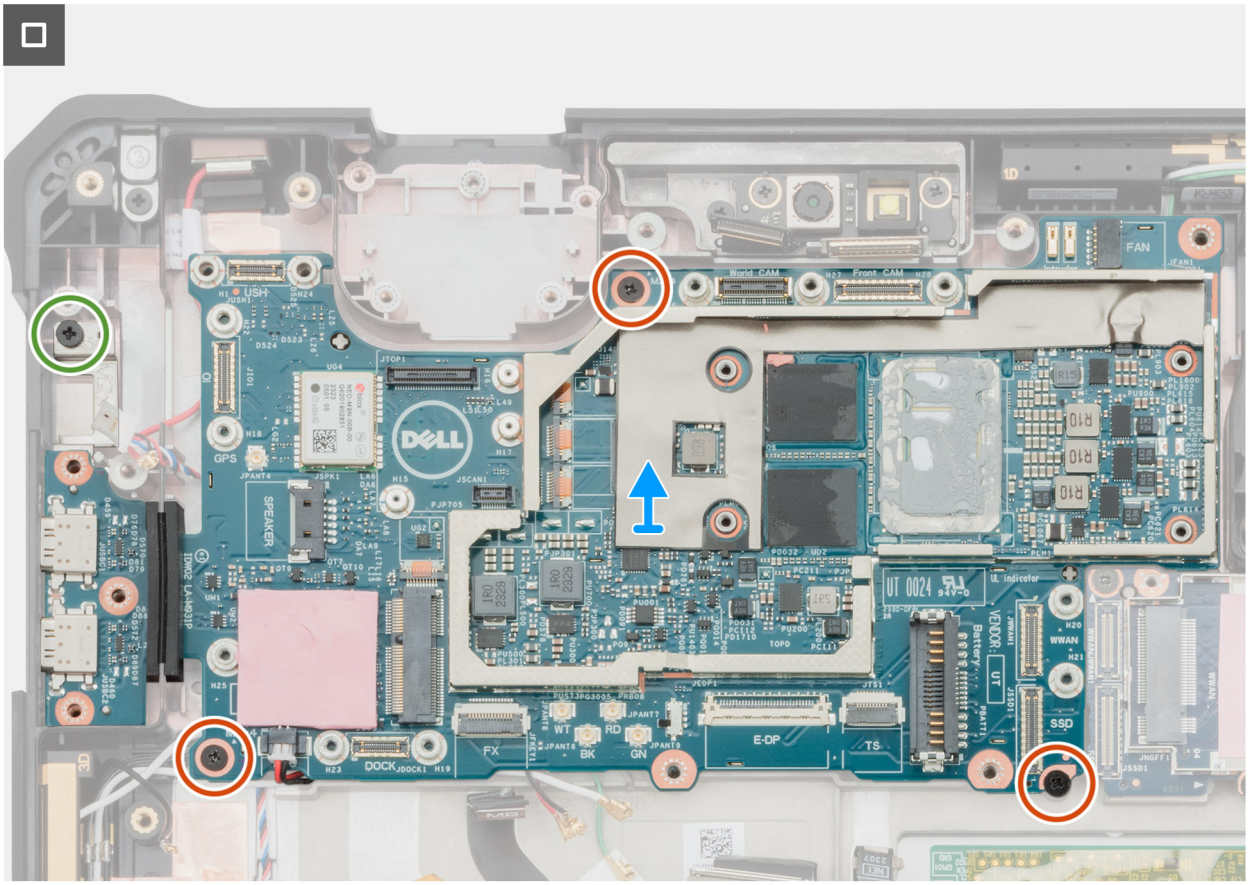

Figure 102. Removing the system board

Steps

1. Loosen the two captive screws that secure the WWAN/SSD connector bracket to the system board.

   NOTE: Loosen the two captive screws in the reverse sequential order mentioned on the WWAN/SSD connector bracket [2 > 1].

2. Lift the WWAN/SSD connector bracket off the system board.
3. Disconnect and remove the WWAN FPC from the connector on the system board and the WWAN/SSD daughter-board.
4. Disconnect and remove the SSD FPC from the connector on the system board and the WWAN/SSD daughter-board.
5. Remove the three screws (M2x3) that secure the camera-connector bracket to the system board.

   NOTE: Steps 5 and 6 apply only to tablets shipped with a front-facing camera and microphone assembly or microphone assembly.

6. Lift the camera-connector bracket off the system board.
7. For tablets shipped with WLAN antennas only, disconnect the red GPS antenna cable, white WLAN Aux P-sensor cable, and red WLAN Main P-sensor cable from the connectors on the system board.
8. For tablets shipped with WWAN antennas, disconnect the red GPS antenna cable, white WLAN Aux P-sensor cable, black MIMO 2 P-sensor cable, red WLAN Main P-sensor cable, and green WWAN main cable from the connectors on the system board.
9. Loosen the two captive screws that secure the docking FPC bracket to the system board.
10. Remove the docking FPC bracket from the system board.
11. Disconnect the following cables from the system board:
    a. World-facing camera FPC

       NOTE: This step applies only to tablets shipped with a world-facing camera installed.

    b. Front-camera and microphone assembly FPC

NOTE: This step applies only to tablets shipped with a front camera and microphone assembly or microphone assembly installed.

c. Touch-screen FPC
d. Display cable
e. Function-button FPC
f. Docking FPC
g. Speaker cable

12. Loosen the captive screw that secures the USB Type-C bracket to the display assembly.
13. Remove the three screws (M2x3) that secure the system board to the display assembly.
14. Remove the system board, along with the coin-cell battery, from the display assembly.

NOTE: The system board includes a USB Type-C bracket which must not be removed.

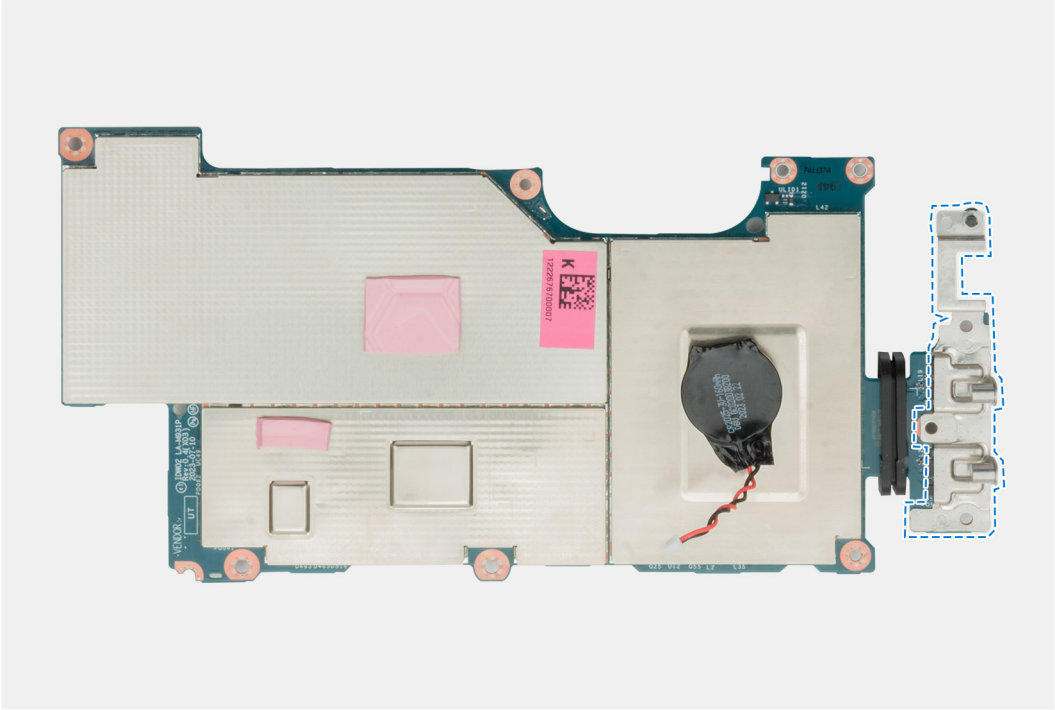

Figure 103. Removing the system board

Installing the system board

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

Prerequisites

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

About this task

The following image indicates the connectors on your system board.

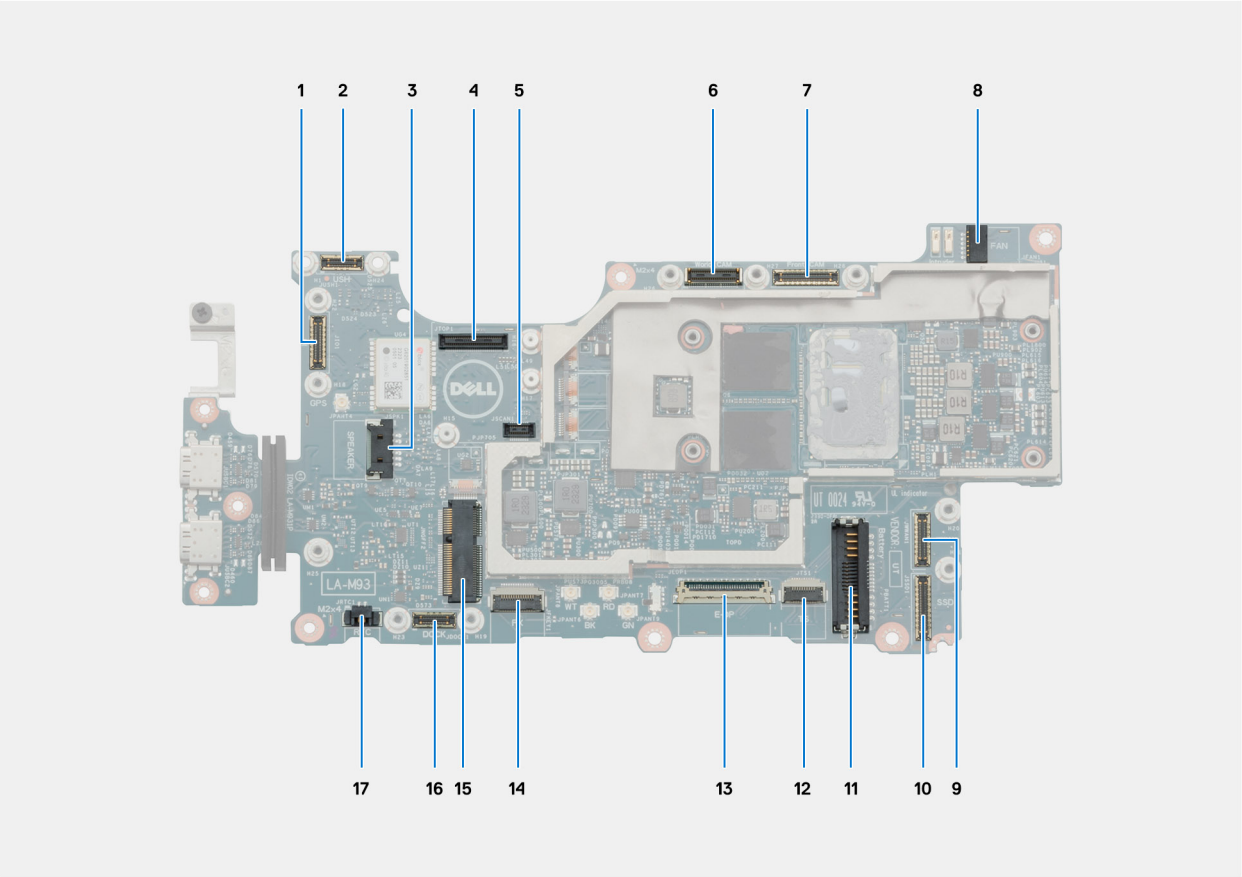

Figure 104. System board connectors

1. I/O daughter-board cable connector
2. USH daughter-board cable connector
3. Speaker cable connector
4. RJ-45/USB 3.2 Gen 1 port/Universal audio jack daughter-board connector
5. 1D-2D barcode-scanner daughter-board connector
6. World-facing camera cable connector
7. Front-camera cable connector
8. Fan cable connector
9. WWAN FPC connector
10. SSD FPC connector
11. Battery cable connector
12. Touch-screen cable connector
13. eDP cable connector
14. Function-button FPC connector
15. Wireless card connector
16. Docking FPC connector
17. Coin-cell battery cable connector

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

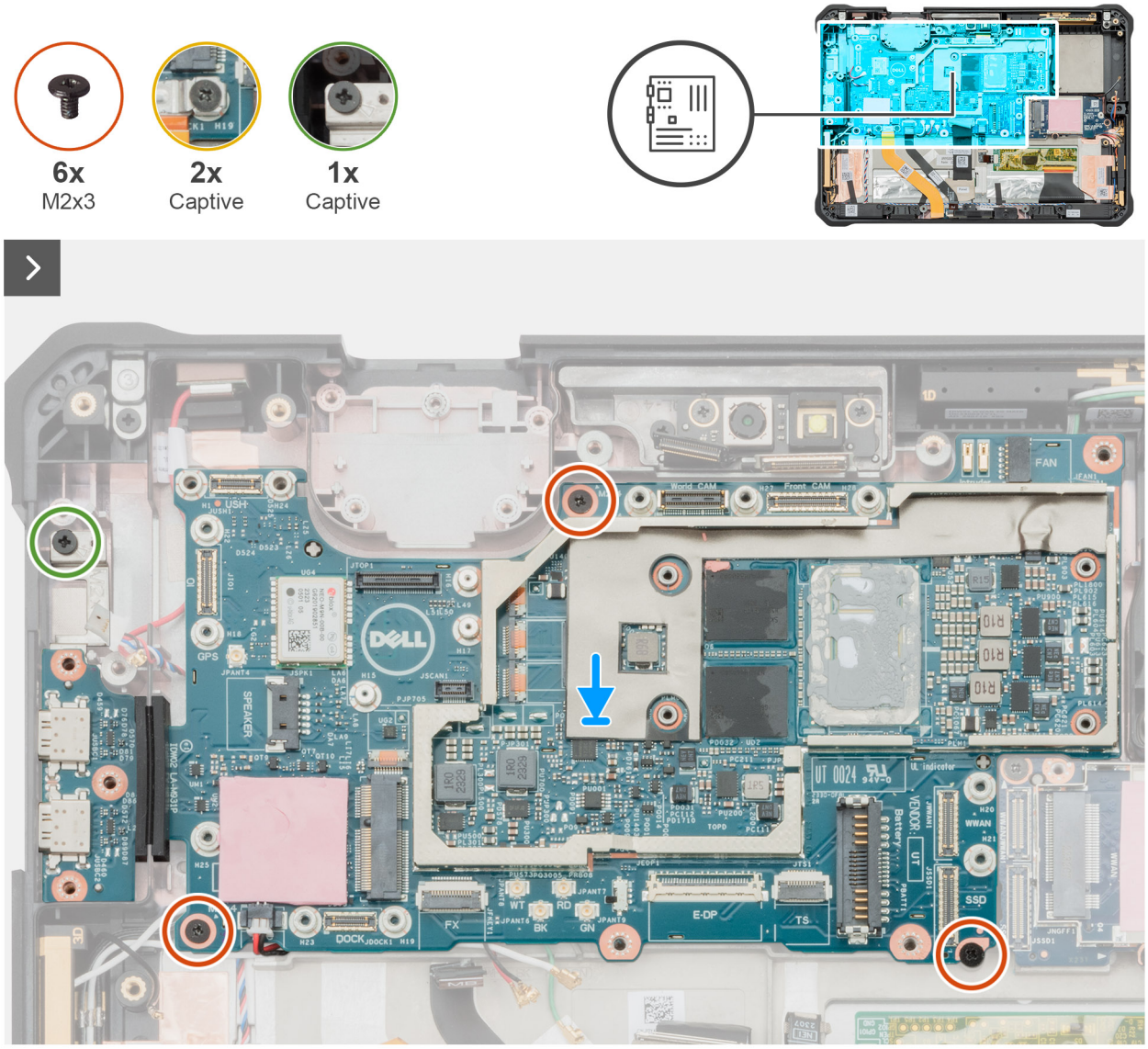

Figure 105. Installation the system board

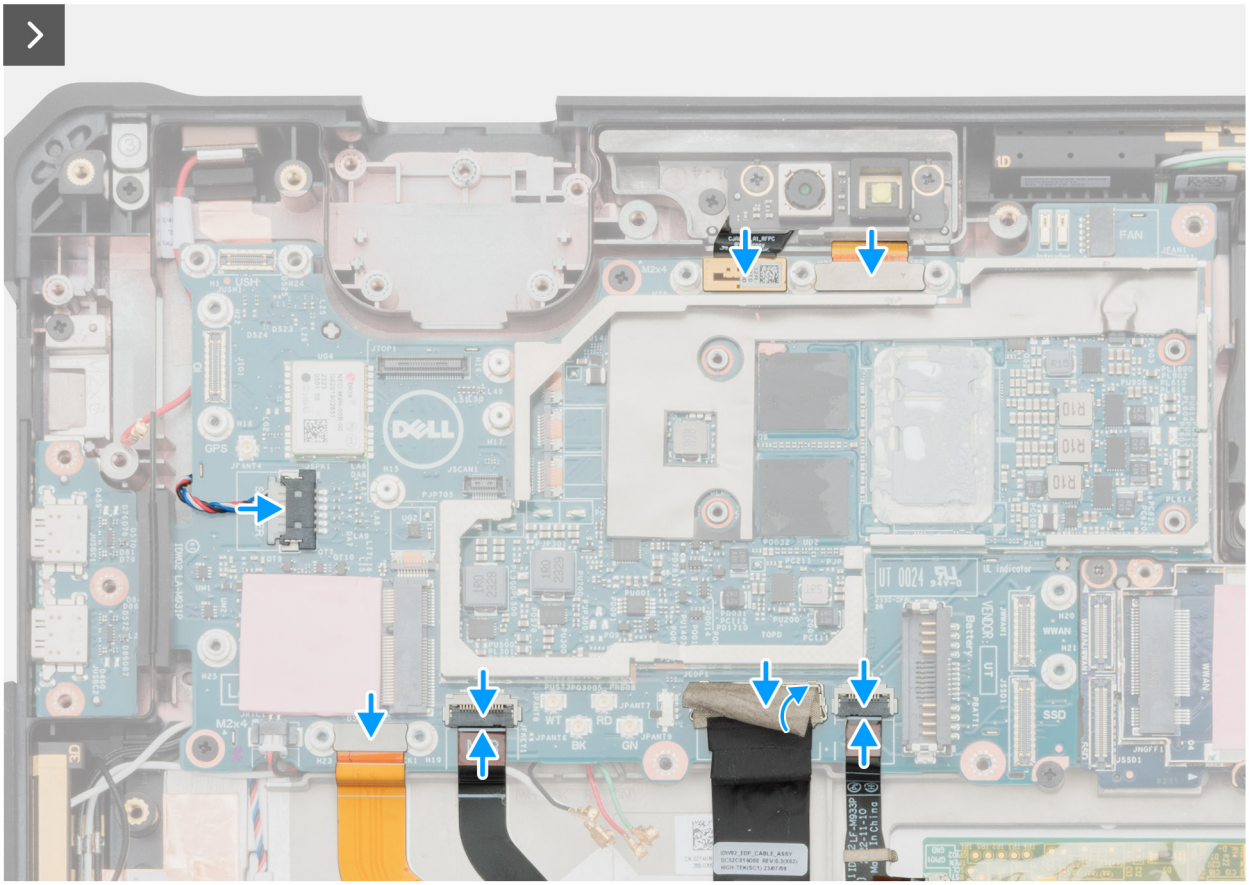

Figure 106. Installation the system board

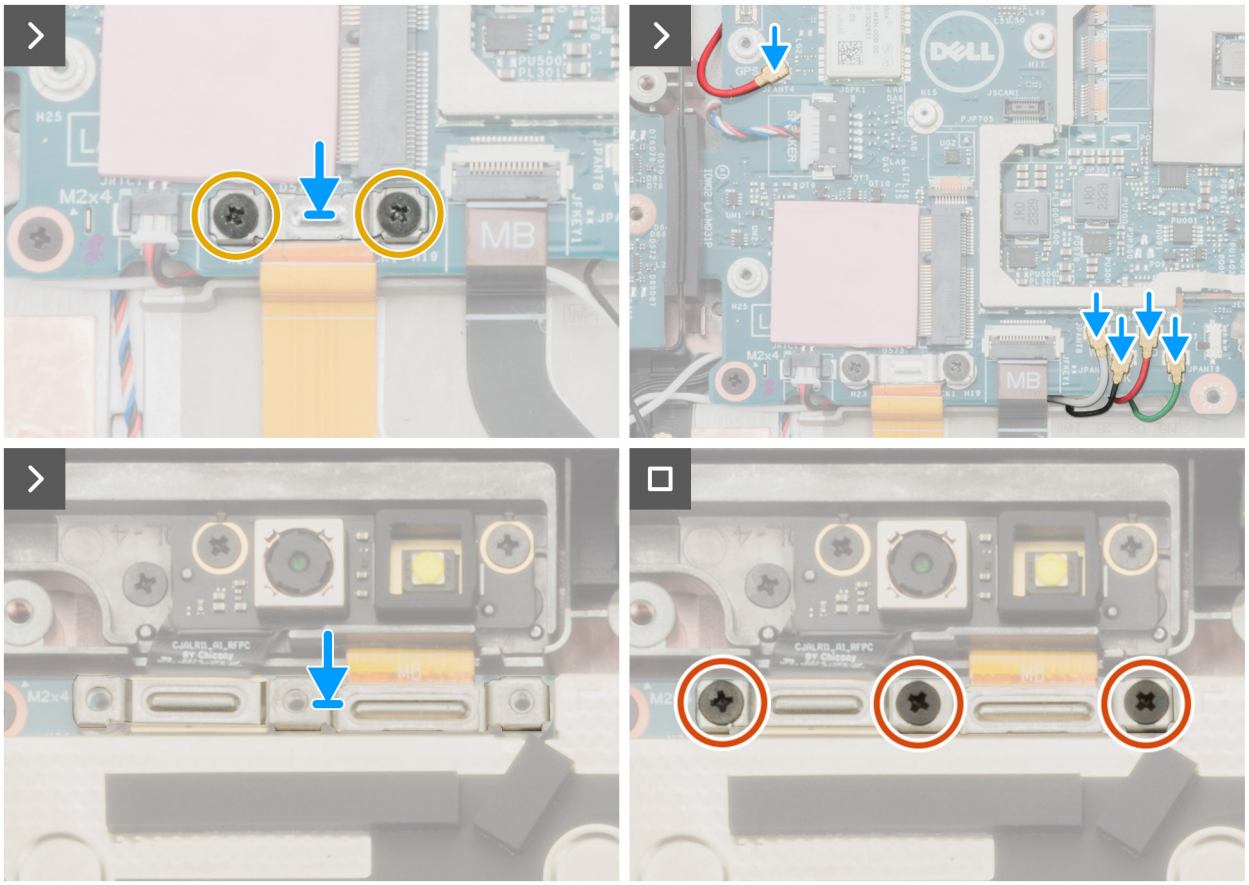

Figure 107. Installing the system board

Steps

1. Align the screw holes on the system board with the screw holes on the display assembly.
2. Replace the three screws (M2x3) to secure the system board to the display assembly.
3. Tighten the captive screw to secure the USB Type-C bracket to the display assembly.
4. Connect the following cables to the connectors on the system board:
   a. World-facing camera FPC

      NOTE: This step applies only to tablets shipped with a world-facing camera installed.

   b. Front-camera and microphone assembly FPC

      NOTE: This step applies only to tablets shipped with a front camera and microphone assembly or microphone assembly installed.

   c. Touch-screen FPC
   d. Display cable
   e. Function-button FPC
   f. Docking FPC
   g. Speaker cable
5. Align the screw holes on the docking FPC bracket with the screw holes on the system board.
6. Tighten the two captive screws to secure the docking FPC bracket to the system board.
7. For tablets shipped with WWAN antennas, connect the red GPS antenna cable, white WLAN Aux P-sensor cable, black MIMO 2 P-sensor cable, red WLAN Main P-sensor cable, and green WWAN main cable to the connectors on the system board.
8. For tablets shipped with WLAN antennas only, connect the red GPS antenna cable, white WLAN Aux P-sensor cable, and red WLAN Main P-sensor cable to the connectors on the system board.
9. Align and place the camera-connector bracket on the system board.
10. Replace the three screws (M2x3) to secure the camera-connector bracket to the system board.

NOTE: Steps 9 and 10 apply only to tablets shipped with a front-facing camera and microphone assembly or microphone assembly.

11. Connect the SSD FPC to the connector on the system board and the WWAN/SSD daughter-board.
12. Connect the WWAN FPC to the connector on the system board and the WWAN/SSD daughter-board.
13. Align and place the WWAN/SSD connector bracket on the system board.
14. Tighten the two captive screws to secure the WWAN/SSD connector bracket to the system board.

NOTE: Tighten the two captive screws in the sequential order mentioned on the WWAN/SSD connector bracket [1 > 2].

Next steps

1. Install the fan and heat-sink assembly.
2. Install the WWAN-card heat-sink.
3. Install the blank top-cover, or the RJ45-port assembly, or the USB-port assembly, or the audio-jack assembly, or the 1D-2D barcode-scanner assembly, whichever is applicable.
4. Install the wireless card.
5. Install the I/O daughter-board.
6. Install the back-cover assembly.
7. Install the SIM card (for hot-swappable batteries), if applicable.
8. Install the hot-swappable batteries, if applicable.
9. Install the handle, if applicable.
10. Install the stylus.
11. Follow the procedure in After working inside your tablet.

Coin-cell battery

Removing the coin-cell battery

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

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.
3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the SIM card (for hot-swappable batteries), if applicable.
6. Remove the back-cover assembly.
7. Remove the I/O daughter-board.
8. Remove the wireless card.
9. Remove the blank top-cover, or the RJ45-port assembly, or the USB-port assembly, or the audio-jack assembly, or the 1D-2D barcode-scanner assembly, whichever is applicable.
10. Remove the WWAN-card heat-sink.
11. Remove the system board.

NOTE: When removing the system board to replace/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.

About this task

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

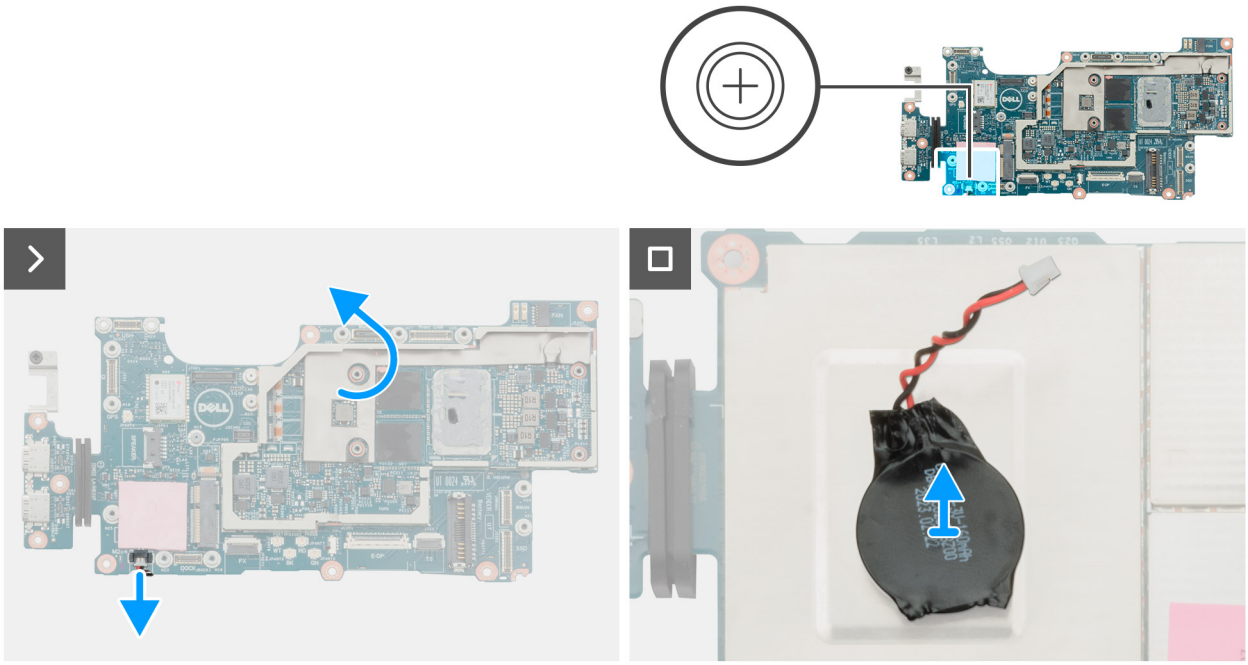

Figure 108. Removing the coin-cell battery

Steps

1. Disconnect the coin-cell battery cable from the connector on the system board.
2. Flip the system board to access the coin-cell battery.
3. Peel the coin-cell battery off the system board.

Installing the coin-cell battery

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

Prerequisites

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

About this task

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

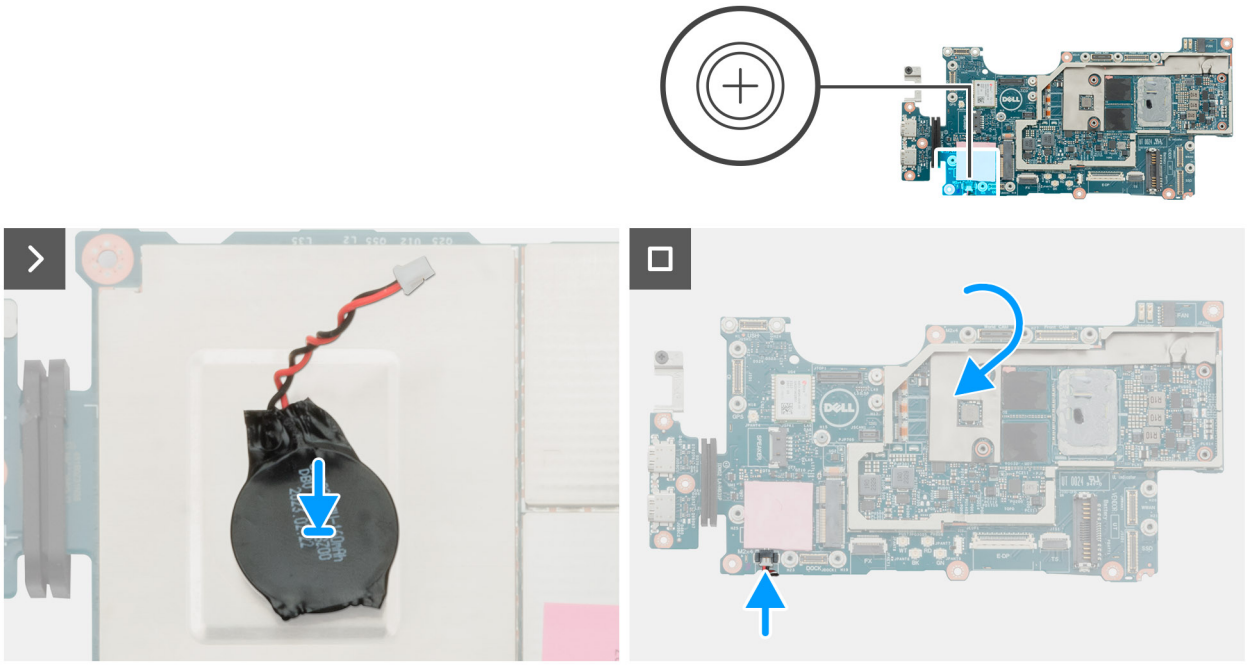

Figure 109. Installing the coin-cell battery

Steps

1. Flip the system board to access the coin-cell battery slot.
2. Adhere the coin-cell battery to the system board.
3. Connect the coin-cell battery cable to the connector on the system board.

Next steps

1. Install the system board.
2. Install the WWAN-card heat-sink.
3. Install the blank top-cover, or the RJ45-port assembly, or the USB-port assembly, or the audio-jack assembly, or the 1D-2D barcode-scanner assembly, whichever is applicable.
4. Install the wireless card.
5. Install the I/O daughter-board.
6. Install the back-cover assembly.
7. Install the SIM card (for hot-swappable batteries), if applicable.
8. Install the hot-swappable batteries, if applicable.
9. Install the handle, if applicable.
10. Install the stylus.
11. Follow the procedure in After working inside your tablet.

Display assembly

Removing the display assembly

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

Prerequisites

1. Follow the procedure in Before working inside your tablet.
2. Remove the stylus.

3. Remove the handle, if applicable.
4. Remove the hot-swappable batteries, if applicable.
5. Remove the SIM card (for hot-swappable batteries), if applicable.
6. Remove the back-cover assembly.
7. Remove the I/O daughter-board.
8. Remove the wireless card.
9. Remove the world-facing camera.
10. Remove the front camera and microphone assembly.
11. Remove the blank top-cover, or the RJ45-port assembly, or the USB-port assembly, or the audio-jack assembly, or the 1D-2D barcode-scanner assembly, whichever is applicable.
12. Remove the WWAN-card heat-sink.
13. Remove the WWAN card, if applicable.
14. Remove the WWAN/SSD daughter-board.
15. Remove the system board.

NOTE: When removing the system board to replace/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.

About this task

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

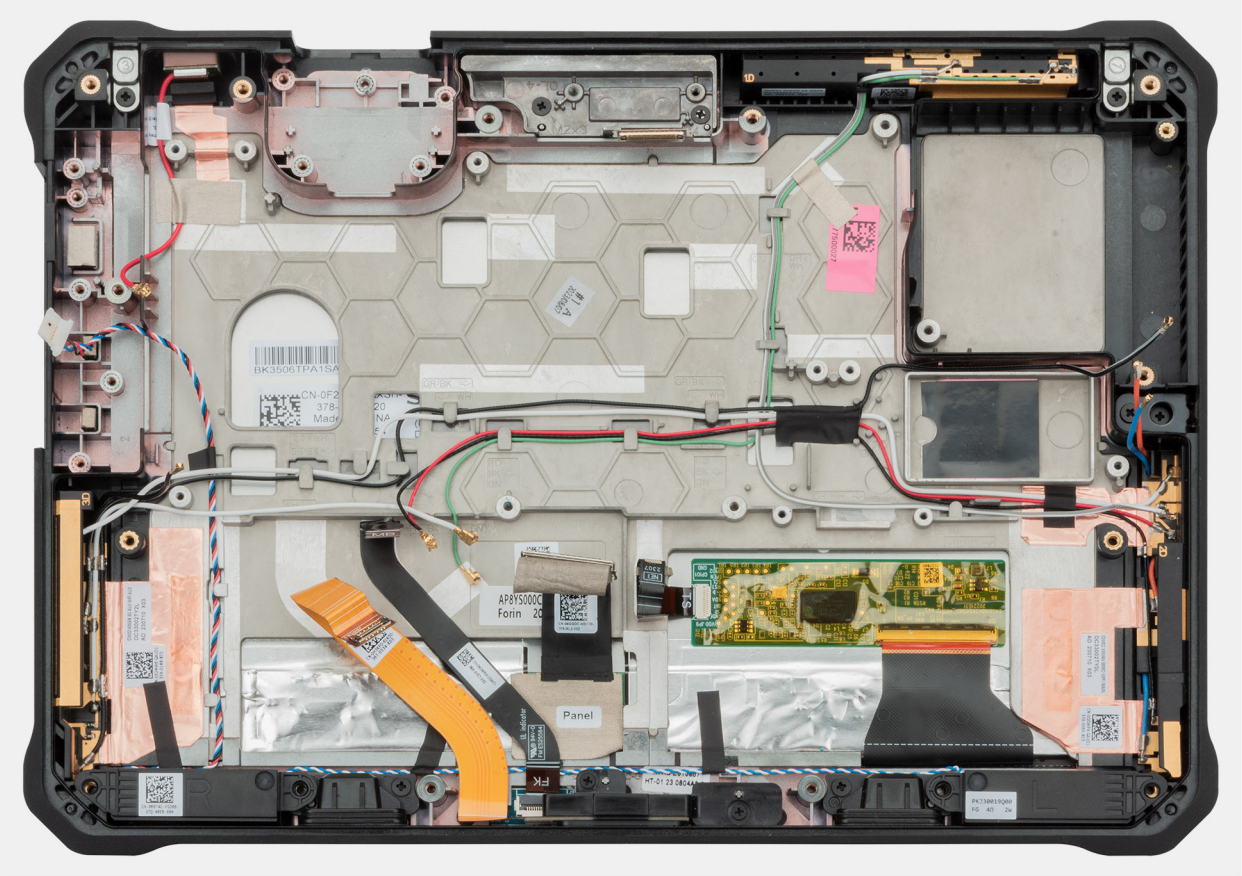

Figure 110. Removing the display assembly

Steps

1. Remove the screw (M2x2) that secures the RJ45 port/USB port/audio jack bezel from the display-panel assembly.

   NOTE: Steps 1 and 2 apply only to tablets shipped with an RJ45 port, or USB port, or audio jack installed.

2. Remove the RJ45 port/USB port/audio jack bezel from the display assembly.

NOTE: The RJ45 port/USB port/audio jack bezel that is removed from the faulty display assembly must be replaced in the replacement display assembly.

3. After performing the above mentioned steps, you are left with the display assembly.

NOTE: The M.2 SSD absorber and thermal pad are reusable and are required to be transferred onto the new display assembly for any display-assembly replacement.

NOTE: The display assembly cannot be further disassembled. If any components in the display assembly are malfunctioning and are required to be replaced, replace the entire display assembly.

Installing the display assembly

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

Prerequisites

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

About this task

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

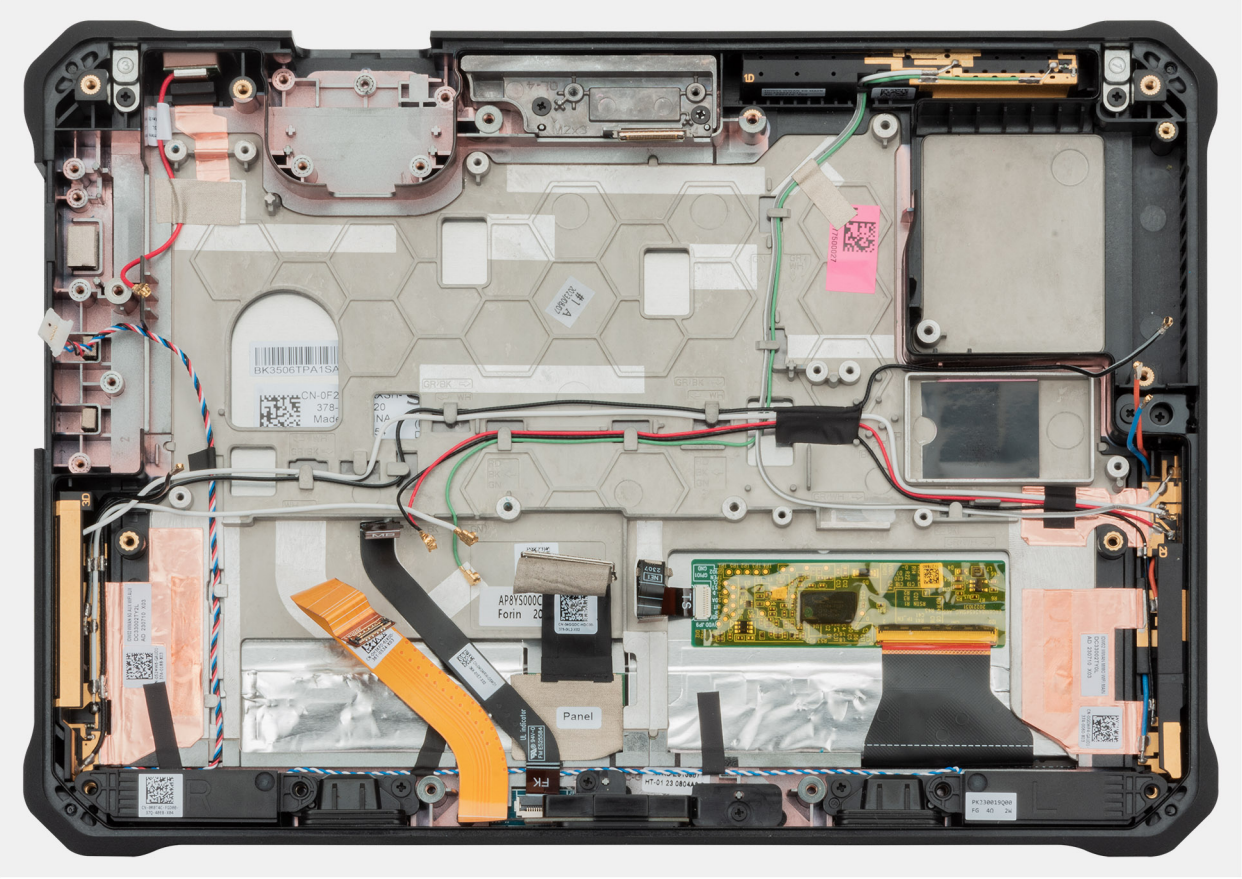

Figure 111. Installing the display assembly

Steps

1. Place the tablet on a flat and clean surface.
2. Align and place the RJ45 port/USB port/audio jack bezel on the display assembly.

NOTE: The RJ45 port/USB port/audio jack bezel that is removed from the faulty display assembly must be replaced in the replacement display assembly.

3. Replace the screw (M2x2) to secure the RJ45 port/USB port/audio jack bezel to the display-panel assembly.

NOTE: Steps 2 and 3 apply only to tablets shipped with an RJ45 port, or USB port, or audio jack installed.

NOTE: The M.2 SSD absorber and thermal pad are reusable and are required to be transferred onto the new display assembly for any display-assembly replacement.

Next steps

1. Install the system board.
2. Install the WWAN/SSD daughter-board.
3. Install the WWAN card, if applicable.
4. Install the WWAN-card heat-sink.
5. Install the blank top-cover, or the RJ45-port assembly, or the USB-port assembly, or the audio-jack assembly, or the 1D-2D barcode-scanner assembly, whichever is applicable.
6. Install the front camera and microphone assembly.
7. Install the world-facing camera.
8. Install the wireless card.
9. Install the I/O daughter-board.
10. Install the back-cover assembly.
11. Install the SIM card (for hot-swappable batteries), if applicable.
12. Install the hot-swappable batteries, if applicable.
13. Install the handle, if applicable.
14. Install the stylus.
15. Follow the procedure in After working inside your tablet.

7

Software

This chapter details the supported operating systems along with instructions on how to install the drivers.

Operating system

Your Latitude 7030 Rugged Extreme Tablet supports the following operating systems:

- Windows 11 2022H2 Pro
- Windows 11 2021H2 Pro
- Windows 10 2022H2 Pro

Drivers and downloads

When troubleshooting, downloading, or installing drivers, it is recommended that you read the Dell Knowledge Base article Drivers and Downloads FAQs 000123347.

8

Technology and components

NOTE: Instructions that are provided in the following section are applicable on computers that are shipped with the Windows operating system. Windows is factory-installed with this computer.

Rugged Control Center

Dell Rugged Control Center brings mission-critical tasks to the forefront of your rugged device, making them easily accessible. Some of the tasks include configuring programmable buttons and edge menus, operating the barcode scanner, enabling and disabling your WiFi and Bluetooth services, and so on.

Using Dell Rugged Control Center, you can also configure a range of settings on your rugged device such as application settings, keyboard backlight, night mode, stealth mode, GPS configuration, and antenna switch.

Dell Rugged Control Center is preinstalled on Latitude Rugged, and Latitude Rugged Extreme Notebooks and Tablets. To launch the application, open the Windows Start menu, and search for Dell Rugged Control Center.

Dell Rugged Control Center consists of five main parts-Dashboard, Program, Feature List, Settings, and Policy.

For more information about Rugged Control Center, refer *Rugged Control Center User's Guide and Quick Start Guide* at Dell.com/support/Rugged-Control-Center.

9

BIOS Setup

CAUTION: Unless you are an expert computer user, do not change the settings in the BIOS Setup. Certain changes can make your computer work incorrectly.

NOTE: Depending on the computer and the installed devices, the options that are listed in this section may or may not be displayed.

NOTE: Before you change the settings in BIOS Setup, it is recommended that you note down the original settings for future reference.

Use BIOS Setup for the following purposes:

- Get information about the hardware installed in your computer, such as the amount of RAM and the size of the storage device.
- Change the system configuration information.
- Set or change a user-selectable option, such as the user password, type of hard drive installed, and enable or disable base devices.

Entering BIOS setup program

About this task

Turn on (or restart) your tablet and press**-** button (decrease-volume button) immediately.

NOTE: If you have installed the optional keyboard on your tablet, press F2 instead of the decrease-volume button.

Navigation keys

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

Table 35. Navigation keys

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
Enter	Selects a value in the selected field (if applicable) or follows the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
Tab	Moves to the next focus area.
Esc	Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restart the computer.

One time boot menu

To enter **one time boot menu**, turn on your tablet, and then press **+** button (increase-volume button) immediately.

NOTE: If you have installed the optional keyboard, press F12 instead of + button (increase-volume button).

NOTE: It is recommended to shut down the tablet if it is on.

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot menu options are:

- Removable Drive (if available)
- STXXXX Drive (if available)

  NOTE: XXX denotes the SATA drive number.
- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

The boot sequence screen also displays the option to access the System Setup screen.

System setup options

NOTE: Depending on your computer and its installed devices, the items that are listed in this section may or may not be displayed.

Table 36. System setup options—Overview menu

Overview	
Latitude 7030 Rugged Extreme Tablet	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.
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.
Battery Information	
Battery 1 Type	Displays the battery type of the computer.
Battery 1 Level	Displays the battery level of the computer.
Battery 1 State	Displays the battery state of the computer.
Battery 1 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.
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.
Current Clock Speed	Displays the current processor clock speed.
Core Count	Displays the number of cores on the processor.

Table 36. System setup options—Overview menu (continued)

Overview	
Processor ID	Displays the processor identification code.
Processor L2 Cache	Displays the processor L2 Cache size.
Processor L3 Cache	Displays the processor L3 Cache size.
Microcode Version	Displays the microcode version.
Intel Hyper-Threading Capable	Displays whether the processor is Hyper-Threading (HT) capable.
64-Bit Technology	Displays whether 64-bit technology is used.
Memory Information	
Memory Installed	Displays the total computer memory installed.
Memory Available	Displays the total computer memory available.
Memory Speed	Displays the memory speed.
Memory Channel Mode	Displays single or dual channel mode.
Memory Technology	Displays the technology that is used for the memory.
Devices Information	
Panel Type	Displays the Panel Type of the computer.
Video Controller	Displays the video controller type of 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.
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 of the computer.

Table 37. System setup options—Boot Configuration menu

Boot Configuration	
Boot Sequence	
Boot Mode: UEFI only	Displays the boot mode of the computer.
Boot Sequence	Displays the boot sequence.
Secure Digital (SD) Card Boot	Enables or disables read-only boot from Secure Digital (SD) card. By default, the **Secure Digital (SD) Card Boot** option is enabled.
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, the **Enable Secure Boot** option is disabled.

Table 37. System setup options—Boot Configuration menu (continued)

Boot Configuration	
	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. **NOTE:** For Secure Boot to be enabled, the computer is required to be in UEFI boot mode and the Enable Legacy Option ROMs option is required to be turned off.
Enable Microsoft UEFI CA	When disabled, the UEFI CA is removed from the BIOS UEFI Secure Boot database. **NOTE:** When disabled, the Microsoft UEFI CA could render your computer unable to 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 **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. **NOTE:** **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.
Custom Mode Key Management	Selects the custom values for expert key management. By default, the **PK** option is selected.

Table 38. 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 switch between a 12-hour and 24-hour clock. Changes to the time format take effect immediately.
Programmable Buttons	
Programmable Buttons Configuration	Enables you to configure the P1 and P1 programmable buttons. By default, the **Configure by RCC** option is enabled.
'-'/'+' Buttons Function	Enables you to configure the -/+ buttons. By default, the **Volume** option is enabled.
Programmable Buttons Function	Enables you to define what function the buttons labeled P1 and P2 on the front of the tablet perform when pressed. By default, the **Button P1 action** is set to 18.
Camera	
Enable Camera	Enables the camera.

Table 38. System setup options—Integrated Devices menu (continued)

Integrated Devices	
	By default, the **Enable World-Facing Camera** option is enabled. **NOTE:** Depending on the configuration ordered, the camera setup option may not be available.
USB GPS Coexistence	
USB GPS Coexistence	Enables you to optimize the system for maximum performance of either USB devices or the dedicated GPS radio. By default, the **Optimize GPS** option is enabled.
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. **NOTE:** Depending on the configuration ordered, the microphone setup option may not be available.
Enable Internal Speaker	Enables the internal speaker. By default, the **Enable Intenal Speaker** option is enabled.
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.
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.
Enable Thunderbolt (and PCIe behind TBT) pre-boot modules	Enables the PCIe devices that are connected through a Thunderbolt adapter to run the PCIe devices UEFI Option ROM (if present) during preboot. By default, the **Enable Thunderbolt (and PCIe behind TBT) pre-boot modules** option is disabled.
Disable USB4 PCIE Tunneling	Disables the USB4 PCIE Tunneling option. By default, the **Disable USB4 PCIE Tunneling** option is disabled.
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.
Type-C Dock	

Table 38. System setup options—Integrated Devices menu (continued)

Integrated Devices	
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.
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.
Type-C Dock LAN	Enables or disables the usage of LAN on the external ports of the connected Type-C Dell docking station. By default, the **Type-C Dock LAN** option is enabled.
Miscellaneous Devices	
Enable Fingerprint Reader Device	Enables the Fingerprint Reader Device option. By default, the **Enable Fingerprint Reader Device** and **Enable Dedicated GPS Radio** options are enabled.
Tablet Buttons Illumination	Enables you to control the LED brightness for the programmable buttons. By default, the **100%** option is enabled.
Tablet Buttons Timeout on AC	Enables you to define the illumination timeout value for the tablet buttons when an AC adapter is plugged in to system. By default, the **10 seconds** option is enabled.
Tablet ButtonTimeout on Battery	Enables you to define the illumination timeout value for the tablet buttons when the computer is running on battery power. By default, the **10 seconds** option is enabled.
Stealth mode	
Enable Stealth Mode	Enables you to configure the Dell Stealth mode feature. By default, the Stealth mode feature is enabled. Below controls may only be configured when the stealth mode is enabled: • Disable onboard LEDs • Disable onboard LCD Screen • Disable onboard speakers • Disable onboard fans • Disable Bluetooth radio • Disable GPS Receiver • Disable WLAN radio • Disable WWAN radio **NOTE:** The stealth mode feature may not persist after the computer resumed from hibernation.

Table 39. 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. The storage device is configured for AHCI/NVMe mode.

Table 39. System setup options—Storage menu (continued)

Storage	
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 feature. By default, the option is disabled.
Drive Information	Displays the information of onboard drives.
Enable MediaCard	
Secure Digital (SD) Card	Enables or disables the SD card. By default, the **Secure Digital (SD) Card** option is enabled.
Secure Digital (SD) Card Read-Only Mode	Enables or disables the SD card read-only mode. By default, the **Secure Digital (SD) Card Read-Only Mode** option is disabled.

Table 40. System setup options—Display menu

Display	
Display Brightness	
Brightness on battery power	Enables to set the screen brightness when the computer is running on battery power. By default, the screen brightness is set to 50 when the computer is running on battery power.
Brightness on AC power	Enables to set the screen brightness when the computer is running on AC power. By default, the screen brightness is set to 100 when the computer is running on AC power.
Touchscreen	Enables or disables the touch screen option. By default, the **Touchscreen** option is enabled.
Full Screen Logo	Enables or disables the computer to display a full-screen logo, if the image matches screen resolution. By default, the **Full Screen Logo** option is disabled.
Limit Panel Brightness to 50%	Allows you to limit the panel brightness to 50%. By default, the option is turned is off.

Table 41. System setup options—Connection menu

Connection	
Wireless Device Enable	
WLAN	Enables or disables the internal WLAN device. By default, the **WLAN** option enabled.
Bluetooth	Enables or disables the internal Bluetooth device. By default, the **Bluetooth** option enabled.
Contactless smartcard/NFC	Enables or disables the contactless smartcard/NFC. By default, the option is enabled.

Table 41. System setup options—Connection menu (continued)

Connection	
Enable UEFI Network Stack	Enables or disables the UEFI Network Stack and controls the onboard LAN Controller. By default, the **Auto Enabled** option is enabled.
Wireless Radio Control	
Control WLAN Radio	Enables to sense the connection of the computer to a wired network and then disables the selected wireless radios (WLAN and/or WWAN). Upon disconnection from the wired network, the selected wireless radios are reenabled. By default, the **Control WLAN Radio** option is disabled.
Dynamic Wireless Transmit Power	Enables to increase the transmit power of WLAN device to improve performance in certain system configurations within regulatory validated guidelines. By default, the option is enabled.
HTTP(s) Boot feature	
HTTP(s) Boot	Enables the HTTP(s) boot capabilities. By default, the option is enabled.
HTTP(s) Boot Modes	By default, the **Auto Mode** is enabled.

Table 42. System setup options—Power menu

Power	
Battery Configuration	
Battery 1 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.
Battery 2 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.
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.
Peak Shift	
Enable Peak Shift	Enables the computer to run on battery during peak power usage hours. By default, the **Enable Peak Shift** option is disabled.
USB PowerShare	Enables or disables the USB PowerShare feature. By default, the option is disabled.
Thermal Management	Enables or disables cooling of fan and manages processor heat to adjust the computer performance, noise, and temperature.

Table 42. System setup options—Power menu (continued)

Power	
	By default, the **Optimized** option is selected. Standard setting for balanced performance, noise, and temperature.
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.
Block Sleep	Enables or disables the computer from entering Sleep (S3) mode in the operating system. By default, the **Block Sleep** option is disabled. **NOTE:** 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.
Lid Switch	
Enable Lid Switch	Enables or disables the Lid Switch. By default, the **Enable Lid Switch** 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.

Table 43. System setup options—Security menu

Security	
TPM 2.0 security	
TPM 2.0 Security On	Allows you to enable or disable TPM. By default, the **TPM 2.0 Security On** option is enabled. For additional security, Dell Technologies recommends keeping **TPM On** enabled to allow these security technologies to fully function.
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. **NOTE:** When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems.
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. **NOTE:** When disabled, this feature may cause compatibility issues or loss of functionality in some operating systems.

Table 43. System setup options—Security menu (continued)

Security	
SHA-256	Allows you to control the hashing algorithm that is used by the TPM. When enabled, the TPM uses the SHA-256 hashing algorithm. When disabled, the TPM uses the SHA-1 hash algorithm. By default, the **SHA-256** option is enabled. For additional security, Dell Technologies recommends keeping the **SHA-256** option enabled.
Clear	When enabled, the **Clear** option clears information that is stored in the TPM after exiting the computer'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.
Physical Presence Interface (PPI) Bypass for Clear Commands	By default, the **PPI Bypass for Clear Commands** option is disabled. For additional security, Dell Technologies recommends keeping the **PPI Bypass for Clear Commands** option disabled.
Intel Total Memory Encryption	Enables or disables the Trusted Platform Module (TPM). This is the normal operating state for the Trusted Platform Module (TPM) when you want to use its complete array of capabilities. By default, the **TPM State** option is enabled.
Multi-Key Total Memory Encyrption (Up to 16 keys)	Total Memory Encyrption (TME) is used to protect the memory from physical damages including freeze spray, probing DDR to read the cycles, and others. By default, the option is disabled.
Chassis intrusion	
Chassis Intrusion Detection	The chassis intrusion detection enables a physical switch that triggers an event when the computer cover is opened. 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 **On-Silent**, the event is logged in the BIOS Events log, but no notification is displayed. When set to **Disabled**, no notification is displayed and no event is logged in the BIOS Events log. By default, the **Chassis Intrusion Detection** option is enabled. For additional security, Dell Technologies recommends keeping the **Chassis Intrusion Detection** option enabled.
Block Boot Until Cleared	Enables or disables the Block Boot Until Cleared option. By default, the **Block Boot Until Cleared** option is disabled. **NOTE:** When enabled, the computer does not boot until the chassis intrusion is cleared. If the administrator password is set, Setup has to be unlocked before the warning can be cleared.
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.

Table 43. System setup options—Security menu (continued)

Security	
	For additional security, Dell Technologies recommends keeping the **SMM Security Mitigation** option enabled unless you have a specific application which is not compatible. **NOTE:** This feature may cause compatibility issues or loss of functionality with some legacy tools and applications.
Data Wipe on Next Boot	
Start Data Wipe	Data Wipe is a secure wipe operation that deletes information from a storage device. **CAUTION: 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 means as they are still represented on the physical media. Data Wipe prevents this reconstruction and is not recoverable. When enabled, the data wipe option will prompt to wipe any storage devices that are connected to the computer on the next boot. By default, the **Start Data Wipe** option is disabled.
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. **NOTE:** 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.
Firmware Device Tamper Detection	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 messages are 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 **Silent** option is enabled. For additional security, Dell Technologies recommends keeping the **Firmware Device Tamper Detection** option enabled.
Clear Firmware Device Tamper Detection	Enables you to clear the event and allow booting. By default, the option is turned off.

Table 44. System setup options—Passwords menu

Passwords	
Admin 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 -

Table 44. System setup options—Passwords menu (continued)

Passwords	
	• The administrator password cannot be set if computer and/or internal hard drive passwords are previously set. • The administrator password can be used in place of the computer and/or internal hard drive passwords. • When set, the administrator password must be provided during a firmware update. • Clearing the administrator password also clears the computer 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 computer password prompt. • The computer shuts down after three incorrect attempts to enter the computer password. • The computer shuts down when the **Esc** key is pressed at the System Password prompt. • The computer password is not prompted when the computer resumes from standby mode. Dell Technologies recommends using the computer password in situations where it is likely that a computer may be lost or stolen.
M.2 PCIe SSD-0	The M.2 PCIe SSD-0 password prevent unauthorized access to the stroage.
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 and require passwords to contain certain character classes (upper case, lower case, digit, special character). Dell Technologies recommends setting the minimum password length to at least eight characters.
Password Bypass	The **Password Bypass** option allows the computer to reboot from the operating system without entering the computer 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 computer or hard drive password. **NOTE:** 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.
Password Changes	
Allow Non-Admin Password Changes	The **Allow Non-Admin Password Changes** option in BIOS setup allows an end user to set or change the computer 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 disabled. For additional security, Dell Technologies recommends keeping the **Allow Non-Admin Password Changes** option disabled.
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).

Table 44. System setup options—Passwords menu (continued)

Passwords	
	By default, the **Admin Setup Lockout** option is disabled. For additional security, Dell Technologies recommends keeping the **Admin Setup Lockout** option disabled.
Master Password Lockout	
Enable Master Password Lockout	The Master Password Lockout setting allows you to disable the Recovery Password feature. If the computer, administrator, or hard drive password is forgotten, the computer becomes unusable. **NOTE:** When the owner password is set, the Master Password Lockout option is not available. **NOTE:** 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 does not recommend enabling the **Master Password Lockout** unless you have implemented your own password recovery computer.
Allow Non-Admin DSID Revert	
Enable Allow Non-Admin PSID Revert	Enables the control access to the Physical Security ID (PSID) revert of NVMe hard-drives from the Dell Security Manager prompt. By default, the option is disabled.

Table 45. 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. **NOTE:** 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.
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 key. By default, the **BIOS Recovery from Hard Drive** option is enabled. **NOTE:** BIOS Recovery from Hard Drive is not available for self-encrypting drives (SED). **NOTE:** 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.
BIOS Downgrade	
Allow BIOS Downgrade	Controls flashing of the computer firmware to previous revisions. By default, the **Allow BIOS Downgrade** option is enabled.
SupportAssist OS Recovery	Enables or disables the boot flow for SupportAssist OS Recovery tool in the event of certain computer errors. 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 operating system Recovery Threshold setup option and local Service operating system does not boot or is not installed.

Table 45. System setup options—Update, Recovery menu (continued)

Update, Recovery	
	By default, the **BIOSConnect** option is enabled.
Dell Auto OS Recovery Threshold	Allows you to control the automatic boot flow for SupportAssist System Resolution Console and for Dell operating system Recovery Tool. By default, the **Dell Auto OS Recovery Threshold** value is set to 2.

Table 46. 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 can be used by an IT administrator to uniquely identify a particular computer. **NOTE:** Once set in BIOS, the Asset Tag cannot be changed.
AC Behavior	
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.
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.
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.
Intel AMT Capability	
Enable Intel AMT Capability	Enable or disables the Intel AMT capability. By default, the **Restrict Preboot Access** option is enabled.
Diagnostics	
OS Agent Requests	Enables or disables the OS Agent request feature. By default, the option is enabled.
Power-on-Self-Test Automatic Recovery	By default, this option is enabled.

Table 47. System setup options—Keyboard menu

Keyboard	
Fn Lock Options	Enables or disables the Fn Lock option. By default, the **Fn Lock** option is enabled.
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.
Keyboard Illumination	Configures the operating mode of the keyboard illumination feature. By default, the **Bright** 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.

Table 47. System setup options—Keyboard menu (continued)

Keyboard	
	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 computer startup. By default, the **Device Configuration HotKey Access** option is enabled. **NOTE:** 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.
RGB Keyboard Backlight	Allows you to configure the RGB keyboard backlight feature. By default, the White, Red, Green, and Blue options are enabled and the White color is active.

Table 48. System setup options—Preboot Behavior menu

Preboot Behavior	
Adapter Warnings	
Enable Dock Warning Messages	Enables the warning messages during boot when the adapters with less power capacity are detected. By default, the **Enable Dock Warning Messages** 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. Stop, prompt, and wait for user input when warnings or errors are detected. **NOTE:** Errors deemed critical to the operation of the computer hardware stop the functioning of the computer.
USB-C Warnings	
Enable Dock Warning Messages	Enables the warning messages during boot when the USB-C adapters with less power capacity are detected. By default, the **Enable Dock Warning Messages** option is enabled.
Fastboot	Allows you to configure the speed of the UEFI boot process. By default, the **Minimal** option is selected. Performs complete hardware and configuration initialization during boot.
Extend BIOS POST Time	Sets the BIOS POST (Power-On Self-Test) load time. By default, the **0 seconds** option is selected.
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 **Passthrough MAC Address** option is selected.
Sign of Life	
Early Logo Display	Display Logo Sign of Life. By default, the **Early Logo Display** option is enabled.

Table 48. System setup options—Preboot Behavior menu (continued)

Preboot Behavior	
Early Keyboard Backlight	Keyboard Backlight Sign of Life. By default, the **Early Keyboard Backlight** option is enabled.
Enable Tablet Button LED Sign of Life	By default, the option is enabled.

Table 49. 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.
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.
Intel Trusted Execution Technology (TXT)	Intel Trusted Execution Technology (TXT) is a set of hardware extensions to Intel processors and chipsets. It provides a hardware-based root of trust to ensure that a platform boots with a known good configuration of firmware, BIOS, virtual machine monitor, and operating system. The following must be enabled in order to enable Intel TXT - • Intel Virtualization Technology - X • Intel Virtualization Technology - Direct By default, the **Intel Trusted Execution Technology (TXT)** option is disabled. For additional security, Dell Technologies recommends keeping the **Intel Trusted Execution Technology (TXT)** option enabled.
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. **NOTE:** 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. **NOTE:** This option is provided only for compatibility purposes, since some older hardware is not DMA capable.
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. **NOTE:** 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. **NOTE:** This option is provided only for compatibility purposes, since some older hardware is not DMA capable.

Table 50. System setup options—Performance menu

Performance	
Multi-Core Support	
Multiple Atom Cores	Enables to change the number of Atom cores available to the operating system. The default value is set to the maximum number of cores. By default, the **All Cores** option is selected.
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.
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.
Intel Turbo Boost Technology	
Enable Intel Turbo Boost Technology	Enables 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.
Intel Hyper-Threading Technology	
Enable Intel Hyper-Threading Technology	Enables the Intel Hyper-Threading mode of the processor. When enabled, the Intel Hyper-Threading increases the efficiency of the processor resources when multiple threads run on each core. By default, the **Intel Hyper-Threading Technology** option is enabled.

Table 51. System setup options—System Logs menu

System Logs	
BIOS Event Log	
Clear BIOS Event Log	Allows you to select option to keep or clear BIOS events logs. By default, the **Keep Log** option is selected.
Thermal Event Log	
Clear Thermal Event Log	Allows you to select option to keep or clear Thermal events logs. By default, the **Keep Log** option is selected.
Power Event Log	
Clear Power Event Log	Allows you to select option to keep or clear Power events logs. By default, the **Keep Log** option is selected.

Updating the BIOS

Updating the BIOS in Windows

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the computer it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress, and the computer will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system reinstall. For more information about this subject, search in the Knowledge Base Resource at Dell Support Site.

Steps

1. Go to Dell Support Site.
2. Click **Product support**. In the **Search support** box, enter the Service Tag of your computer, and then click **Search**.

   NOTE: If you do not have the Service Tag, use the SupportAssist to automatically identify your computer. You can also use the product ID or manually browse for your computer model.

3. Click **Drivers & Downloads**. Expand **Find drivers**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. After the download is complete, browse the folder where you saved the BIOS update file.
8. Double-click the BIOS update file icon and follow the on-screen instructions.
   For more information, search in the Knowledge Base Resource at Dell Support Site.

Updating the BIOS using the USB drive in Windows

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the computer it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress, and the computer will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system reinstall. For more information about this subject, search in the Knowledge Base Resource at Dell Support Site.

Steps

1. Follow the procedure from step 1 to step 6 in Updating the BIOS in Windows to download the latest BIOS setup program file.
2. Create a bootable USB drive. For more information, search in the Knowledge Base Resource at Dell Support Site.
3. Copy the BIOS setup program file to the bootable USB drive.
4. Connect the bootable USB drive to the computer that needs the BIOS update.
5. Restart the computer and press **F12** .

   NOTE: If you have not installed the optional keyboard, press **+** button (volume up) instead of F12.

6. Select the USB drive from the **One Time Boot Menu**.
7. Type the BIOS setup program filename and press **Enter**.
   The **BIOS Update Utility** appears.
8. Follow the on-screen instructions to complete the BIOS update.

Updating the BIOS from the F12 One-Time boot menu

Update your computer BIOS using the BIOS update.exe file that is copied to a FAT32 USB drive and booting from the F12 One-Time boot menu.

About this task

CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the computer it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress, and the computer will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system reinstall. For more information about this subject, search in the Knowledge Base Resource at Dell Support Site.

BIOS Update

You can run the BIOS update file from Windows using a bootable USB drive or you can also update the BIOS from the F12 One-Time boot menu on the computer.

Most of the Dell computers built after 2012 have this capability, and you can confirm by booting your computer to the F12 One-Time Boot Menu to see if BIOS FLASH UPDATE is listed as a boot option for your computer. If the option is listed, then the BIOS supports this BIOS update option.

NOTE: Only computers with the BIOS Flash Update option in the F12 One-Time boot menu can use this function.

Updating from the One-Time boot menu

To update your BIOS from the F12 One-Time boot menu, you need the following:

- USB drive formatted to the FAT32 file system (key does not have to be bootable).
- BIOS executable file that you downloaded from the Dell Support website and copied to the root of the USB drive.
- AC power adapter that is connected to the computer.
- Functional computer battery to flash the BIOS.

Perform the following steps to perform the BIOS update flash process from the F12 menu:

CAUTION: Do not turn off the computer during the BIOS update process. The computer may not boot if you turn off your computer.

Steps

1. From a turn off state, insert the USB drive where you copied the flash into a USB port of the computer.
2. Turn on the computer and press F12 to access the One-Time Boot Menu, select BIOS Update using the mouse or arrow keys then press Enter.

   NOTE: If you have not installed the optional keyboard, press **+** button (volume up) instead of F12.

   The flash BIOS menu is displayed.
3. Click **Flash from file**.
4. Select an external USB device.
5. Select the file and double-click the flash target file, and then click **Submit**.
6. Click **Update BIOS**. The computer restarts to flash the BIOS.
7. The computer will restart after the BIOS update is completed.

System and setup password

Table 52. System and setup password

Password type	Description
System password	Password that you must enter to log in to your system.
Setup password	Password that you must enter to access and make changes to the BIOS settings of your computer.

You can create a system password and a setup password to secure your computer.

CAUTION: The password features provide a basic level of security for the data on your computer.

CAUTION: Anyone can access the data that is stored on your computer, when left unattended.

NOTE: System and setup password feature is disabled.

Assigning a System Setup password

Prerequisites

You can assign a new System or Admin Password only when the status is in **Not Set**.

About this task

To enter BIOS System Setup, press F2 immediately after a power-on or reboot.

Steps

1. In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.
   The **Security** screen is displayed.
2. Select **System/Admin Password** and create a password in the **Enter the new password** field.
   Use the following guidelines to assign the system password:
   - A password can have up to 32 characters.
   - At least one special character: "(! " # $ % & ' * + , - . / : ; < = > ? @ [\ ] ^ _ ` { | })"
   - Numbers 0 to 9.
   - Upper case letters from A to Z.
   - Lower case letters from a to z.
3. **Confirm new password** type the system password that you entered earlier in the field and click **OK**.
4. Press Esc and save the changes as prompted by the message.
5. Press Y to save the changes.
   The computer restarts.

Deleting or changing an existing system password or setup password

Prerequisites

Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing system password and/or setup password. You cannot delete or change an existing system password or setup password if the **Password Status** is Locked.

About this task

To enter the System Setup, press F2 immediately after a power-on or reboot.

Steps

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.
   The **System Security** screen is displayed.
2. In the **System Security** screen, verify that the **Password Status** is Unlocked.
3. Select **System Password**. Update or delete the existing system password, and press Enter or Tab.
4. Select **Setup Password**. Update or delete the existing setup password, and press Enter or Tab.

   NOTE: If you change the system password and/or setup password, reenter the new password when prompted. If you delete the system password and/or setup password, confirm the deletion when prompted.

5. Press Esc. A message prompts you to save the changes.

6. Press Y to save the changes and exit from **System Setup**.
   The computer restarts.

Clearing CMOS settings

About this task

CAUTION: Clearing CMOS settings will reset the BIOS settings on your computer.

Steps

1. Remove the base-cover assembly.
2. Remove the coin-cell battery.
3. Wait for one minute.
4. Replace the coin-cell battery.
5. Replace the base-cover assembly.

Clearing BIOS (System Setup) and System passwords

About this task

To clear the computer or BIOS passwords, contact Dell technical support as described at Contact Support. For more information, go to Dell Support Site.

NOTE: For information about how to reset Windows or application passwords, see the documentation accompanying Windows or your application.

10

Troubleshooting

Handling swollen rechargeable Li-ion batteries

Like most laptops, Dell laptops use Lithium-ion batteries. One type of Lithium-ion battery is the rechargeable Li-ion battery. Rechargeable Li-ion batteries have increased in popularity in recent years and have become a standard in the electronics industry due to customer preferences for a slim form factor (especially with newer ultra-thin laptops) and long battery life. Inherent to rechargeable Li-ion battery technology is the potential for swelling of the battery cells.

A swollen battery may impact the performance of the laptop. To prevent possible further damage to the device enclosure or internal components leading to malfunction, discontinue the use of the laptop and discharge it by disconnecting the AC adapter and letting the battery drain.

Swollen batteries should not be used and must be replaced and disposed of properly. We recommend contacting Dell Support for options to replace a swollen battery under the terms of the applicable warranty or service contract, including options for replacement by a Dell authorized service technician.

The guidelines for handling and replacing rechargeable Li-ion batteries are as follows:

- Exercise caution when handling rechargeable Li-ion batteries.
- Discharge the battery before removing it from the computer. To discharge the battery, unplug the AC adapter from the computer and operate the computer only on battery power. The battery is fully discharged when the computer no longer turns on when the power button is pressed.
- Do not crush, drop, mutilate, or penetrate the battery with foreign objects.
- Do not expose the battery to high temperatures, or disassemble battery packs and cells.
- Do not apply pressure to the surface of the battery.
- Do not bend the battery.
- Do not use tools of any type to pry on or against the battery.
- If a battery gets stuck in a device as a result of swelling, do not try to free it as puncturing, bending, or crushing a battery can be dangerous.
- Do not attempt to reassemble a damaged or swollen battery into a laptop.
- Swollen batteries that are covered under warranty should be returned to Dell in an approved shipping container (provided by Dell)—this is to comply with transportation regulations. Swollen batteries that are not covered under warranty should be disposed of at an approved recycling center. Contact Dell Support at Dell Support Site for assistance and further instructions.
- Using a non-Dell or incompatible battery may increase the risk of fire or explosion. Replace the battery only with a compatible battery purchased from Dell that is designed to work with your Dell computer. Do not use a battery from other computers with your computer. Always purchase genuine batteries from Dell Site or otherwise directly from Dell.

Rechargeable Li-ion batteries can swell for various reasons such as age, number of charge cycles, or exposure to high heat. For more information about how to improve the performance and lifespan of the laptop battery and to minimize the possibility of occurrence of the issue, search Dell laptop battery in the Knowledge Base Resource at Dell Support Site.

Locating the Service Tag or Express Service Code of your Dell computer

Your Dell computer is uniquely identified with a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, we recommend entering the Service Tag or Express Service Code at Dell Support Site.

For more information about how to find the Service Tag for your computer, see Instructions on how to find your Service Tag or Serial Number.

Dell SupportAssist Pre-boot System Performance Check diagnostics

About this task

SupportAssist diagnostics (also known as system diagnostics) performs a complete check of your hardware. The Dell SupportAssist Pre-boot System Performance Check diagnostics is embedded with the BIOS and launched by the BIOS internally. The embedded system diagnostics provides options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode.
- Repeat the tests.
- Display or save test results.
- Run thorough tests to introduce additional test options to provide extra information about one or more failed devices.
- View status messages that inform you the tests are completed successfully.
- View error messages that inform you of problems encountered during testing.

NOTE: Some tests for specific devices require user interaction. Always ensure that you are present at the computer when the diagnostic tests are performed.

For more information, see the knowledge base article 000180971.

Running the SupportAssist Pre-Boot System Performance Check

About this task

NOTE: Ensure that you have installed the optional keyboard on your tablet before running SupportAssist Pre-Boot system performance check.

Steps

1. Turn on your tablet.
2. As the tablet boots, press the F12 key as the Dell logo appears.
3. On the boot menu screen, select the **Diagnostics** option.
4. Click the arrow at the bottom left corner.
   Diagnostics front page is displayed.
5. Click the arrow in the lower-right corner to go to the page listing.
   The items that are detected are listed.
6. To run a diagnostic test on a specific device, press Esc and click **Yes** to stop the diagnostic test.
7. Select the device from the left pane and click **Run Tests**.
8. If there are any issues, error codes are displayed.
   Note the error code and validation number and contact Dell.

Built-in self-test (BIST)

M-BIST

M-BIST (Built In Self-Test) is the system board's built-in self-test diagnostics tool that improves the diagnostics accuracy of system-board embedded controller (EC) failures.

NOTE: M-BIST can be manually initiated before POST (Power On Self-Test).

How to run M-BIST

NOTE: M-BIST must be initiated on the system from a power-off state that is either connected to AC power or with battery only.

NOTE: Ensure that you have installed the optional keyboard on your tablet before running M-BIST.

1. Press and hold both the **M** key on the keyboard and the **power button** to initiate M-BIST.
2. With both the **M** key and the **power button** held down, the battery indicator LED may exhibit two states:
   a. OFF: No fault was detected with the system board.
   b. AMBER: Indicates a problem with the system board.
3. If there is a failure with the system board, the battery status LED flashes one of the following error codes for 30 seconds:

Table 53. LED error codes

Blinking Pattern		Possible Problem
Amber	**Green**	
2	1	CPU Failure
2	8	LCD Power Rail Failure
1	1	TPM Detection Failure
2	4	Memory/RAM failure

4. If there is no failure with the system board, the LCD cycles through the solid color screens that are described in the LCD-BIST section for 30 seconds and then power off.

LCD Power rail test (L-BIST)

L-BIST is an enhancement to the single LED error code diagnostics and is automatically initiated during POST. L-BIST will check the LCD power rail. If there is no power being supplied to the LCD (that is if the L-BIST circuit fails), the battery status LED flashes either an error code [2,8] or an error code [2,7].

NOTE: If L-BIST fails, LCD-BIST cannot function as no power will be supplied to the LCD.

How to invoke the L-BIST

1. Turn on your computer computer.
2. If the computer does not start up normally, look at the battery status LED:
   - If the battery status LED flashes an error code [2,7], the display cable may not be connected properly.
   - If the battery status LED flashes an error code [2,8], there is a failure on the LCD power rail of the system board, hence there is no power that is supplied to the LCD.
3. For cases, when a [2,7] error code is shown, check to see if the display cable is properly connected.
4. For cases when a [2,8] error code is shown, replace the system board.

LCD Built-in Self Test (BIST)

Dell laptops have a built-in diagnostic tool that helps you determine if the screen abnormality you are experiencing is an inherent problem with the LCD (screen) of the Dell laptop or with the video card (GPU) and PC settings.

When you notice screen abnormalities like flickering, distortion, clarity issues, fuzzy or blurry image, horizontal or vertical lines, color fade so on, it is always a good practice to isolate the LCD (screen) by running the Built-In Self Test (BIST).

How to invoke LCD BIST

NOTE: Ensure that you have installed the optional keyboard on your tablet before running LCD BIST.

1. Power off the Dell laptop.
2. Disconnect any peripherals that are connected to the laptop. Connect only the AC adapter (charger) to the laptop.
3. Ensure that the LCD (screen) is clean (no dust particles on the surface of the screen).
4. Press and hold the **D** key and **Power on** the laptop to enter LCD built-in self test (BIST) mode. Continue to hold the D key until the system boots.

5. The screen displays solid colors and change colors on the entire screen to white, black, red, green, and blue twice.
6. Then it displays the colors white, black, and red.
7. Carefully inspect the screen for abnormalities (any lines, fuzzy color, or distortion on the screen).
8. At the end of the last solid color (red), the system shuts down.

NOTE: Dell SupportAssist Preboot diagnostics upon launch initiates an LCD BIST first, expecting a user intervention to confirm functionality of the LCD.

System-diagnostic lights

This section lists the system-diagnostic lights of your Latitude 7030 Rugged Extreme Tablet.

Power and battery-status light

The power and battery status light indicates the power and battery status of the tablet. These are the power states:

Solid green: Power adapter is connected and the battery has more than 5% charge.

Amber: Computer is running on battery and the battery has less than 5% charge.

Off:

- Power adapter is connected, and the battery is fully charged.
- Tablet is running on battery, and the battery has more than 5% charge.
- Tablet is in sleep state, hibernation, or turned off.

The power and battery-status light may blink amber or green according to pre-defined "beep codes" indicating various failures.

For example, the power and battery-status light blinks amber two times followed by a pause, and then blinks green three times followed by a pause. This 2,3 pattern continues until the tablet is turned off, indicating no memory or RAM is detected.

The following table shows different power and battery-status light patterns and associated problems.

NOTE: The following diagnostic light codes and recommended solutions are intended for Dell service technicians to troubleshoot problems. You should only perform troubleshooting and repairs as authorized or directed by the Dell technical assistance team. Damage due to servicing that is not authorized by Dell is not covered by your warranty.

Table 54. System-diagnostic lights

Blinking pattern		Problem description	Suggested resolution
Amber	Green		
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, battery, coin cell) and drain flea power by pressing and holding down the power button for 3~5 seconds.
1	7	Unsupported SPI Flash	Replace the system board.
2	1	CPU failure	• Run the Dell Support Assist/Dell Diagnostics tool. • If the problem persists, replace the system board.
2	2	System board failure (included BIOS corruption or ROM error)	• Flash latest BIOS version. • If the problem persists, replace the system board.

Table 54. System-diagnostic lights (continued)

Blinking pattern		Problem description	Suggested resolution
Amber	Green		
2	3	No memory/RAM detected	• Confirm that the memory module is installed properly. • If the problem persists, replace the memory module.
2	4	Memory/RAM failure	• Reset and swap memory modules among the slots. • If the problem persists, replace the memory module.
2	5	Invalid memory installed	• Reset 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 LCD module.
2	8	LCD failure (EC detection of power rail failure)	Replace the system board.
3	1	CMOS battery failure	• Reset the main battery connection. • If the problem persists, replace the main battery.
3	2	PCI or Video card/chip failure	Replace the system board.
3	3	BIOS Recovery image not found	• Flash latest BIOS version. • If the problem persists, replace the system board.
3	4	BIOS Recovery image found but invalid	• Flash latest BIOS version. • If the problem persists, replace the system board.
3	5	Power rail failure	Replace the system board.
3	6	Flash corruption detected by SBIOS	• Press the power button for over 25 seconds to do RTC reset. If the problem persists, replace the system board. • Disconnect all power source (AC, battery, coin cell) and drain flea power by pressing and holding down the power button 3~5 seconds to ensure all power are drained. • Run "BIOS recovery from USB", and the instructions are in the website Dell support. • If the problem persists, replace the system board.

Table 54. System-diagnostic lights (continued)

Blinking pattern		Problem description	Suggested resolution
Amber	Green		
3	7	Timeout waiting on ME to reply to HECI message	Replace the system board.

NOTE: Blinking 3-3-3 LEDs on Lock LED (Caps-Lock or Nums-Lock), Power button LED (without Fingerprint reader), and Diagnostic LED indicates failure to provide input during LCD panel test on Dell SupportAssist Pre-boot System Performance Check diagnostics.

Camera status light: Indicates whether the camera is in use.

- Solid white—Camera is in use.
- Off—Camera is not in use.

Recovering the operating system

When your computer is unable to boot to the operating system even after repeated attempts, it automatically starts Dell SupportAssist OS Recovery.

Dell SupportAssist OS Recovery is a stand-alone tool that is preinstalled in Dell computers running Windows operating system. It consists of tools to diagnose and troubleshoot issues that may occur before your computer boots to the operating system. It enables you to diagnose hardware issues, repair your computer, back up your files, or restore your computer to its factory state.

You can also download it from the Dell Support website to troubleshoot and fix your computer when it fails to boot into the primary operating system due to software or hardware failures.

For more information about the Dell SupportAssist OS Recovery, see *Dell SupportAssist OS Recovery User's Guide* at Serviceability Tools at the Dell Support Site. Click **SupportAssist** and then, click **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. The legacy jumper enabled RTC reset has been retired on these models.

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

Backup media and recovery options

It is recommended to create a recovery drive to troubleshoot and fix problems that may occur with Windows. Dell provides multiple options for recovering the Windows operating system on your Dell computer. For more information, see Dell Windows Backup Media and Recovery Options.

Wi-Fi power cycle

About this task

If your computer is unable to access the Internet due to Wi-Fi connectivity issues, reset your Wi-Fi device by performing the following steps:

Steps

1. Turn off the computer.
2. Turn off the modem.
   NOTE: Some Internet service providers (ISPs) provide a modem and router combo device.
3. Turn off the wireless router.

4. Wait for 30 seconds.
5. Turn on the wireless router.
6. Turn on the modem.
7. Turn on the computer.

Drain residual flea power (perform hard reset)

About this task

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 residual 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 residual flea power:

Steps

1. Turn off the computer.
2. Disconnect the power adapter from the computer.
3. Remove the base cover.
4. Remove the battery.

   CAUTION: The battery is a Field Replaceable Unit (FRU) and the removal and installation procedures are intended for authorized service technicians only.

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.

   NOTE: For more information about performing a hard reset, search in the Knowledge Base Resource at the Dell Support Site.

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Getting help and contacting Dell

Self-help resources

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

Table 55. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	Dell Site
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	Windows Support Site Linux Support Site
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals, and documents.	Your Dell computer is uniquely identified using a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at Dell Support Site. For more information about how to find the Service Tag for your computer, see Locate the Service Tag on your computer.
Dell knowledge base articles	1. Go to Dell Support Site. 2. On the menu bar at the top of the Support page, select **Support** > **Support Library**. 3. 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.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see Dell Support Site.

NOTE: Availability of the services may vary depending on the country or region, and product.

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